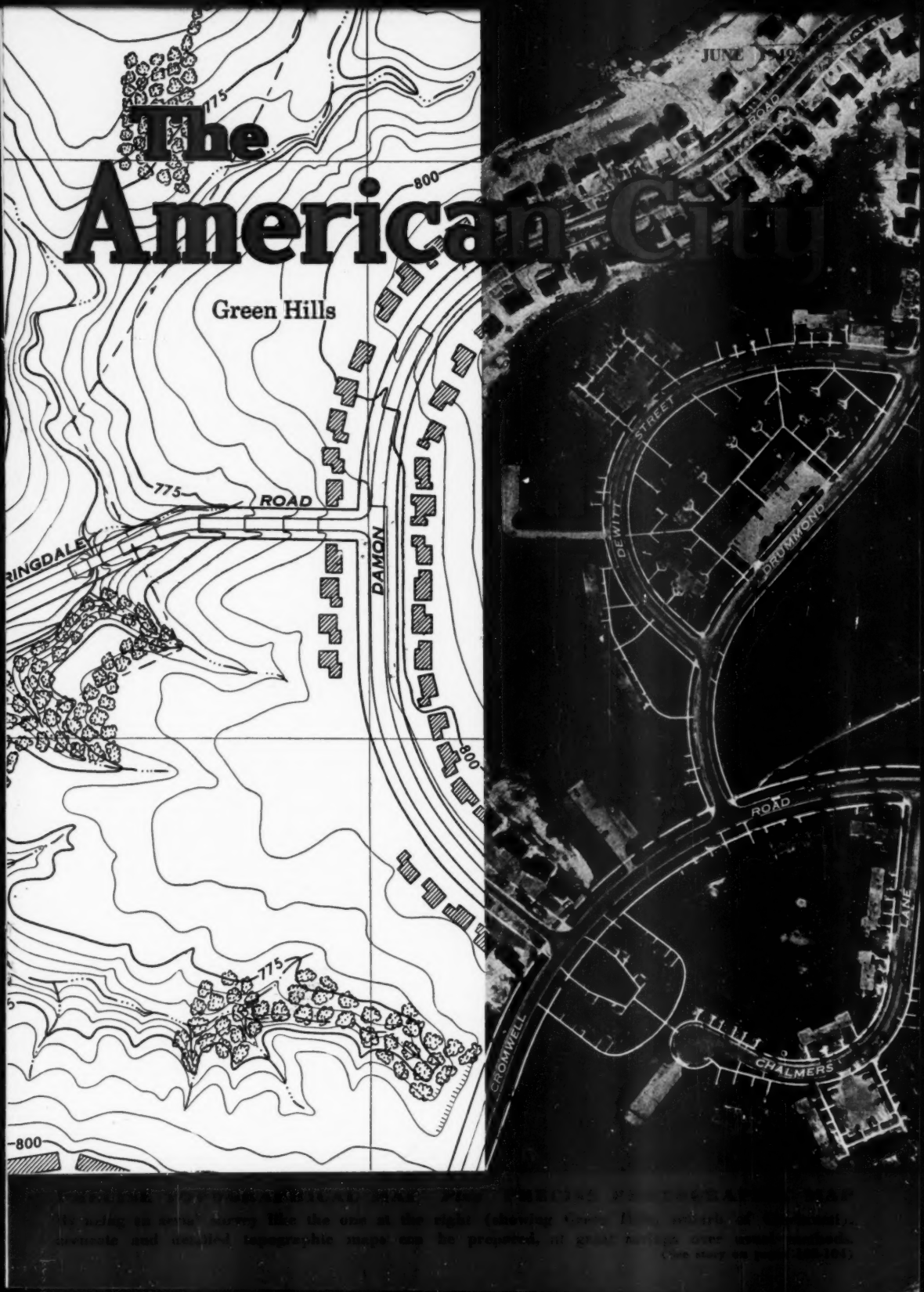
The American City



(See story on page 100-101)

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"The Voice with a Smile"

**"Hail ye small, sweet courtesies of life,
for smooth do ye make the road of it."**

Often we hear comments on the courtesy of telephone people and we are mighty glad to have them.

For our part, we would like to say a word about the courtesy of those who use the telephone.

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Our Municipal Notebook

For Traffic Improvement, Watch Evansville

EVANSVILLE, Ind., is the guinea pig, the test tube, the pudding now being consumed, of the efficacy of the President's Highway Safety Conference held three years ago. One or more of the ten points of the recommended action program have been tried out in a number of cities and states. What would happen if the entire prescription were swallowed by a single city? A year ago a group of twelve national trade groups concerned with safer highways and better motoring decided to find out. Instead of wrestling with the conglomeration of traffic problems in the abstract, it was decided to develop a community traffic action program in a "test city."

Evansville was tapped and has responded wholeheartedly. The galaxy of talent, the comprehensiveness of planning, and the first buds of results are described elsewhere in this issue. A house-to-house survey of attitudes on local traffic conditions convinced city officials there that the citizens not only wanted something done about the headache, but were willing to support reforms.

A city of 125,000, nestled along the Ohio River, Evansville had more pluck, if fewer resources, than big cities that have nibbled at the problem to date. Unlike many other cities, where the need for traffic reform is just as great, Evansville decided to do the job right. The Hoosier community adopted the entire recommended Action Program and played it all the way across the board, neglecting no angle, hitting all. That's the town's spirit that won for it the support of a dozen national groups. Evansville is accepting the technical advice, but the effort to apply it is coming from the citizens and local public officials themselves. There's no substitute for local action on this problem.

Evansville is Anyville. Perusing the strategy of the war on congestion and traffic accidents, one is constrained to believe that something is going to be done to win the battle of Evansville. When it is won, Everyville will take notice and act accordingly.

For the Evansville story in greater detail, see pages 81-83 of this issue.

The Truth About Gas-Tax Diversion

FOR many years we have heard the cries of well-justified indignation from various road-builder interests protesting diversion of any gasoline-tax funds from the function of building and maintaining highways. At times, this has almost taken the aspect of a crusade to defend the very fundamentals of democracy itself.

One of the most determined of these no-diversion proponents has been Arthur C. Butler, Director of the National Highway Users Conference (National Press Building, Washington 4, D. C.). From him you can get a booklet entitled "Safeguarding Highway Revenues." This text, prepared by himself, preaches the gospel that diversion encourages higher taxes, blocks intelligent long-range planning, creates accidents, and handicaps the development of good roads—all admittedly unwholesome developments.

We won't dispute these arguments. In fact, we support them. What we will say is that the present system that Mr. Butler's organization and others so stoutly support is the greatest offender in the matter of gas-tax diversion by far. Figures from impartial surveys show it unmistakably. Here is the reason:

Actually the diversion of gas-tax funds to non-highway purposes amounts to less than 10%. You can get this figure from Mr. Butler's booklet. It is an important figure to remember. But at the same time, 92% to 95% of the gax-tax funds are spent on rural highways although less than half the revenue comes from traffic on these same roads. Therein lies the unfairness of the present system. City streets are left out in the cold.

We have all seen, and THE AMERICAN CITY has published, factual studies by the Public Roads Administration showing that over half the traffic today travels on the streets lying in incorporated areas. And therefore at least half the gax-tax revenue comes from cars, buses, and trucks traveling on city streets. But on a national average, only 5% and 8% of this is returned to the cities to maintain the street system that makes this income possible.

Therefore, today the present gas-tax system diverts more than 40% from the pockets of the people who provide the money without giving an adequate *quid pro quo*.

We can go down the list that Mr. Butler presents: Diversion does prevent the development of a good street system. Cities fight desperately to maintain those streets by using inexpensive asphalt surfacing and various low-cost base-stabilization methods. However, on the rural highways, the most elaborate in construction procedures are followed. This diversion causes tax increases. That overburdened workhorse, the

The American City Quiz

Match Wits With the Experts

QUESTIONS

1. ***Is there any municipal incinerator that receives a combined refuse including ashes?***
2. ***How quickly does refuse decompose in the sanitary fill?***
3. ***How frequently should expansion joints be placed in concrete pavement?***
4. ***What percent of all water supplies is metered?***
5. ***How far should septic tanks be placed from wells?***
6. ***What is the first record of water-main cleaning by running a rough cleaner through the water main?***
7. ***What is a good figure for sewer-line cleaning in number of feet cleaned per day?***
8. ***How can sidewalks be repaired where the upper surface has scaled away because of a rich topping?***
9. ***What is a good figure for street-sweeping performance?***
10. ***What revisions will have to be made in airport design to meet the heat and temperature stresses introduced by jet engines?***

(Answers on page 7)

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property tax, has to assume the responsibility of financing the street improvements so that the motorist can use them and thereby raise more money to be diverted for rural highway construction. Accidents are created because cities do not have enough funds to construct accident-free facilities. Long-range planning is difficult, since the planners know that money they should have to work with has been taken from them.

Cities rightfully should have a substantial share in state-raised gas-tax revenues. The time has long passed when we should recognize this. The time is long overdue when cities should realize the benefits of the income that their streets make possible.

There is no reason for this class legislation that discriminates against our cities and their street systems. Now is the time to raise the voices of the municipalities to correct this gross inequity.

Need for Census Of Housing Cited

PURSUANT to action of its Board of Directors, the Chamber of Commerce of the United States has urged Congress to adopt legislation authorizing the taking of a census of housing in connection with a regular decennial census in 1950.

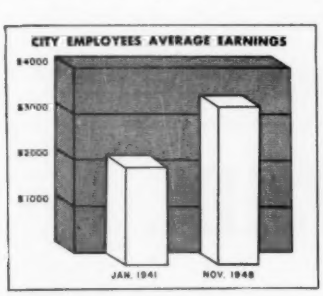
The communication said, in part:

> In view of the importance of adequate and accurate statistics on housing, the Chamber of Commerce of the United States favors the adoption of legislation which would provide for a decennial census of housing to be taken in connection with the decennial census of population in the year 1950.
>
> In view of the importance of adequate and this census, it is highly desirable that Congress act promptly.

Detroit Research Bureau Analyzes City-Employee Earnings

THE trend in average earnings of Detroit city employees is shown in the chart below, prepared by the Detroit Bureau of Governmental Research, which was recently reproduced in *The Detroiter*, published weekly by the Detroit Board of Commerce.

The Bureau has pointed out, however, that whether the "average pay" has remained in line with rising living costs depends on which group of employees is considered; and, to some degree, on which price index is used. The "average pay" of city employees was $3,423 on November 1, 1948. But although this figure is 64% more than the pre-war (January 1, 1941) average of $2,082, the $3,423 equals only $1,996 in 1941 dollar value, according to the Consumers' Price Index of the Bureau of Labor Statistics.



Mayor Eugene I. Van Antwerp has recommended a 3-cent-an-hour general pay raise ($63 a year) for the fiscal year 1949-50. In addition, an appropriation is asked for several adjustments to equalize rates of pay in various professional and labor classifications, as well as premium pay of 5 cents an hour for late-afternoon and night-shift work. Pensions, life insurance, and hospitalization are some of the city-employee benefits not included in the above earning figures.

Universities Urged To Expand Studies in Land Use and Housing

PROFESSOR Ernest M. Fisher, Director of the Institute for Urban Land Use and Housing Studies at Columbia University, has urged that more universities embark on programs of research in housing and the study of urban land use problems. He declares that universities can combine research and instruction, and that they can approach problems of public policy as well as private decisions from an objective point of view in the interest of the public welfare.

In a talk made at Columbia University on April 2, he stated:

> Time presses upon us. The process of building and rebuilding our urban com-

The American City Quiz

Answers to questions on Page 5

1. One successfully operated plant of this type is located at Englewood, N. J. And this one screens out the ash before sending the balance to the furnace.

2. Apparently the process may be very slow. Tests by the Department of Public Works, San Francisco, Calif., showed relatively no decomposition in this city's fill after 12 years of use. Corn, carrots, lemon, and grape-rind were all easily identified.

3. Not at all, according to present studies by the Minnesota Department of Highways. Omission is beneficial since it prevents the contraction joints from opening too wide.

4. L. R. Howson, Alvord, Burdick and Howson, consultants, estimates that 85% of all water distributed is distributed through meters.

5. B. A. Poole, Indiana State Board of Health, states that 50 feet is a good minimum. However, even at 250 feet, pollution sometimes is found.

6. One early experience that showed that mains could be cleaned in this way occurred about 50 years ago and involved the late J. Waldo Smith, designer and builder of New York's Catskill aqueduct. At the time, Mr. Smith was associated with Clemeas Herschel in the construction of the Pequannock supply for Newark, N. J.

During a severe cold spell, anchor and frazil ice at the intake clogged the racks leading to the two 48-inch steel pipelines. With no other way available to clear the racks, Mr. Smith pulled the racks and let the ice go down the mains.

When the next test was made on these pipes he was surprised to find the carrying capacity appreciably increased. Investigation of the pipe interior showed that the almost solid plug of ice and slush had scoured out the lines, removing all slime, carried away any irregularities, and left the interior polished and smooth.

7. Long Beach, Calif., with a three-man crew, will clean from 3,000 feet to 2 miles of sewer in an average 8-hour day. The practice here is to use a large, heavy Sidu cleaning ball and let the sewage force it through the sewer. The travel of the ball is controlled by a tag line on a windlass at the upstream manhole.

8. Kansas City, Mo., has used successfully asphalt-aggregate mix known as "plastic rock." Assistant City Engineer Stanley Palmer has it applied in a ¼-inch thick layer. It is hard enough to bear traffic successfully, and soft enough to cling to the concrete.

9. Clarke Gardner, city engineer of Salisbury, Md., reports that this city's Elgin sweeper averages 13.6 curb miles per day and gathers 15 cubic yards of sweepings from each curb mile.

10. None at all, according to studies made by the American Road Builders' Association. Heat from the tail pipe is 750° F. immediately in back of the outlet. Fifty feet back this heat is only 175° F. and the action of the jet is parallel to the runway surface. At the tail-pipe opening, the heat is only 120° F. two feet above or below the opening, and any paving surface customarily used on airport runways can stand temperatures well above this.

Send in your suggested questions with the answers on municipal topics for use in this feature. The AMERICAN CITY will make a small payment for each question accepted.

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STAINLESS—Allegheny metal plates, sheets, bars, etc.

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PLATES—Sheared & U. M., Inland 4-Way Floor Plate

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munities is proceeding at a constantly accelerated pace. Congestion every day takes a stupendous toll of time, energy, and human satisfactions and wealth. Important and far-reaching decisions are being made by public authority and by private parties committing large amounts of capital to both public and private improvements whose effects are irrevocable and will be felt by coming generations.

This large segment of our economic resources and of our social processes has been strangely neglected by our universities for reasons which need not be elaborated here. The painstaking and time-consuming research necessary to an understanding of urban life as it is affected by urban land uses is only in the initial stages of formulation and execution. In order to prosecute it effectively, the abilities and training represented by specialization in a number of the arts and sciences are needed. The opportunity to apply the methods and the understanding of the sociologist, the social psychologist, the economist, the architect and engineer, the public health specialist, the lawyer, and the public administrator to these problems is challenging.

THE AMERICAN CITY welcomes the statements by Professor Fisher. As our civilization becomes increasingly a technological one and increasingly urbanized, it is time that universities give the science of urban form and structure the attention which it deserves, and especially to study, in Prof. Fisher's words, "how the advantages of concentration can be realized with release from the burdens and limitations imposed by an intolerable congestion."

Des Moines Adopts Council Manager Plan

DES MOINES, Iowa, whose 1940 population was 159,819, is one of the larger cities recently to be added to the list of local governments adopting the council-manager plan. Official returns for a special election on April 30 showed 20,686 votes for adoption of a city manager government to replace the present commission form, and 19,876 against it.

There are now 917 local governments operating under the council-manager plan, with 34 added since the start of the year, according to a list prepared on May 15 by the National Municipal League of New York City, the citizens' organization which has done most to promote the plan throughout the country. Richmond, Va., with an estimated post-war population of 223,716, was the largest city to adopt the plan in 1948.

Communities adopting the plan since January 1, 1949, include the following:

California—Merced, Monrovia, Napa, Newport Beach, Redondo Beach, Sunnyvale
Illinois—Hinsdale
Iowa—Des Moines
Maine—Berwick, Boothbay Harbor, Chelsea, Jackman, Millbridge, New Gloucester, Thomaston, Waldoboro
Massachusetts—Danvers
Michigan—Gaastro, Gaylord
Missouri—Cameron, Columbia, Mexico
New Hampshire — Ashland, Bethlehem, Derry
North Carolina—Dunn, Fayetteville
Oklahoma—Britton, Drumright
South Carolina—Newberry
Texas—Bellaire, Dalhart, Killeen
Virginia—Martinsville.

New Planning and Zoning Advisory Services Inaugurated by ASPO

A NEW *Planning Advisory Service* instituted by the American Society of Planning Officials provides planning agencies with research and advice on their individual planning problems. Subscribers also receive a series of special reports on various technical aspects of planning. Information Report No. 1, for example, deals with building lines, mapped streets, setbacks and front yards. Other reports in the series will include such subjects as metropolitan planning, elimination of non-conforming uses, auditoriums and stadiums, architectural control, urban redevelopment, and off-street parking. The annual subscription also includes a membership in the Society, the ASPO *News Letter*, and the *Planning Yearbook*.

This is a great bargain for cities—especially for those municipalities that lack adequate research facilities. The annual cost of the Service, which is based on population, starts as low as $25 for cities with a population of less than 10,000.

Another of the Society's new services is *Zoning Digest*, a monthly publication giving a report and interpretation of zoning laws and decisions in the United States. Each issue will include also an editorial article on some special phase of zoning. The first issue, for example (dated April 1949), discusses the question, "Are the city, the state, and the federal government bound by a local zoning ordinance?"

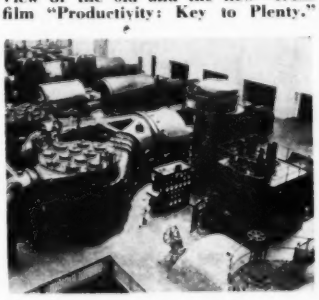
THE AMERICAN CITY welcomes this new service as supplementing the monthly department of Zoning and Planning Notes which has been a regular feature of this magazine since 1923.

Those interested in further information on *Planning Advisory Service* and *Zoning Digest* should write to the American Society of Planning Officials, 1313 East 60th Street, Chicago 37, Ill.

New Films on Productivity and Enterprise

A TWO-REEL, 16-mm, black-and-white sound film with music, tracing the story since 1850 of how America achieved its high standard of living and how it may be raised still higher in the future, has been released by the Twentieth Century Fund, 330 West 42nd St., New York 18, N. Y. Entitled "Productivity: Key to Plenty," and produced in cooperation with Encyclopedia Britannica Films, this documentary motion picture is based on the Fund's monumental study, "America's Needs and Resources," by J. Frederic Dewhurst and Associates.

View of the old and the new—from film "Productivity: Key to Plenty."

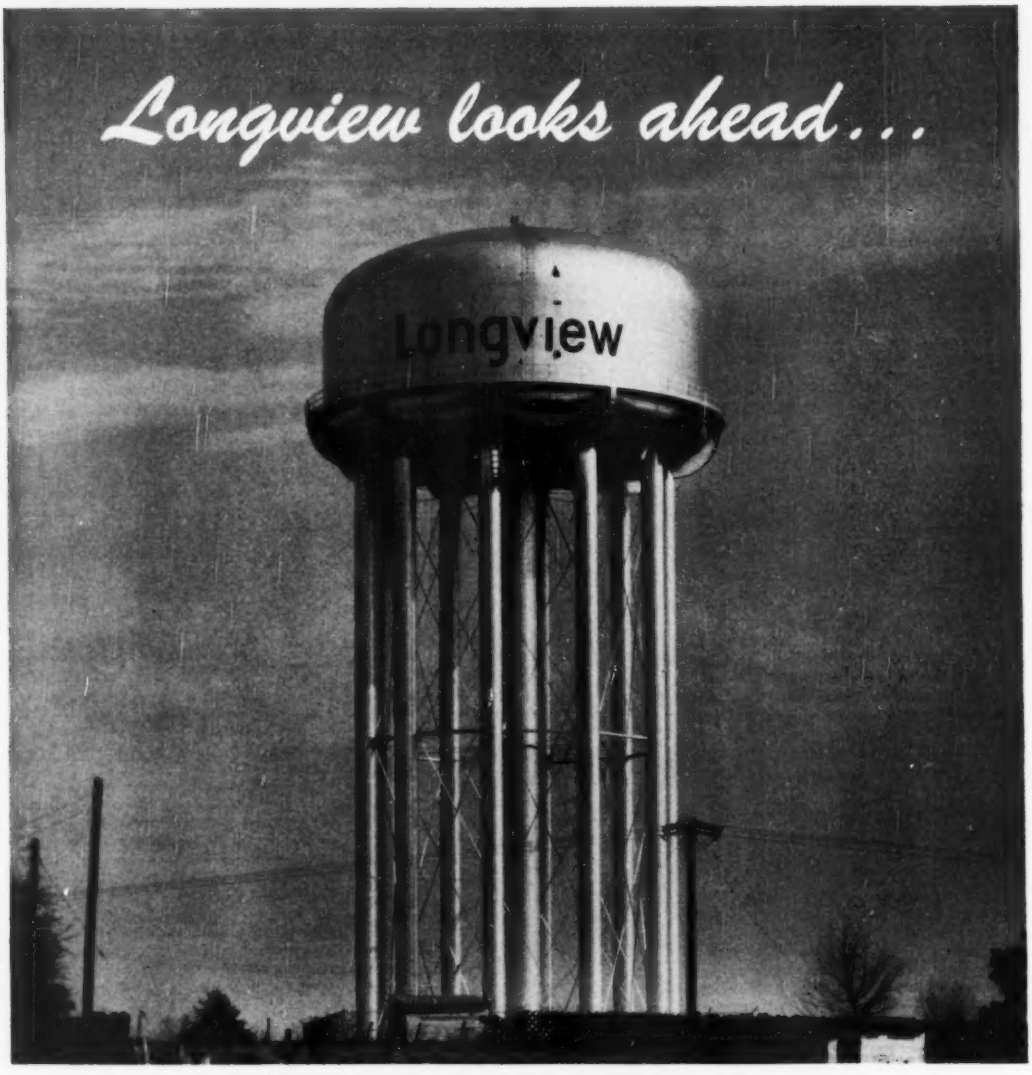


The film is an imaginative explanation of what productivity is and how it affects our standard of living. Ways of living are contrasted for 1850 and today. The gradual development of new energy sources and new industrial techniques is pictured. Finally, the film shows in both live action and animation how income, leisure, and the good life as Americans know it rest on a base of constantly rising output per man-hour which in turn rests on the use of greater and greater power and new techniques.

A Film for Small Towns

Entitled "Enterprise," and dedicated to the small towns all over America, a 16-mm documentary film in full color has been produced by Cluett, Peabody & Co., Inc., 10 East 40th St., New York 16, N. Y. "Enterprise"—running time 31 minutes—is the story of a small town—Buchanan, Ga., population 500—about 50 miles west of Atlanta. Once the center of a prosperous cotton area, the town was declining steadily because the soil had failed and there was no other source of livelihood for the townspeople. Young folks were leaving to seek work elsewhere. It was a gloomy picture, but all that is changed. Buchanan now has a successful factory and is growing again. There are new homes, new businesses, a new hospital, and many of those who left for jobs elsewhere are returning.

The "Productivity" film is available at a low rental charge. For the "Enterprise" film there is no charge except transportation.



Progressive Longview, Texas has answered its immediate needs for better water service and paved the way for future growth with modern elevated storage. The new 1,000,000-gal. Horton radial-cone bottom tank illustrated above, 110 ft. to bottom, together with two existing Horton tanks, now provides a total capacity of 1,350,000 gallons held in elevated storage.

Like Longview, cities and towns everywhere which have outgrown their water systems are finding that additional modern elevated storage capacity is the economical way to expand. By making possible more efficient use of existing facilities, elevated storage often increases system capacity without adding mains or pumping equipment.

If you have a water problem now or foresee one in the future, write the nearest office listed below for an estimate on your elevated storage requirements.

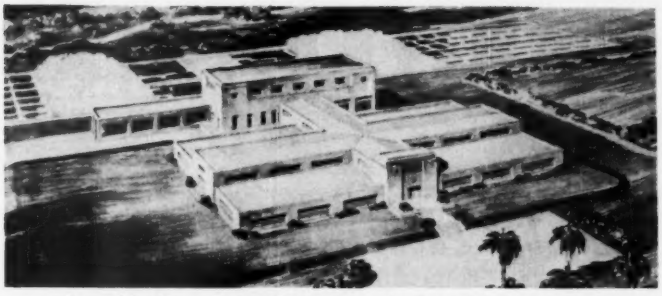
CHICAGO BRIDGE & IRON COMPANY

Atlanta 3 ..... 2114 Healey Bldg.
Birmingham 1 ..... 1502 North Fiftieth St.
Boston 10 ..... 1002—201 Devonshire St.
Chicago 4 ..... 2127 McCormick Bldg.
Cleveland 15 ..... 2236 Guildhall Bldg.
Detroit 26 ..... 1501 Lafayette Bldg.
Havana ..... 402 Abreu Bldg.
Houston 2 ..... 2101 National Standard Bldg.
Los Angeles 14 ..... 1503 General Petroleum Bldg.
New York 6 ..... 3308—165 Broadway Bldg.
Philadelphia 3 ..... 1616—1700 Walnut Street Bldg.
Salt Lake City 1 ..... 1501 First Security Bank Bldg.
San Francisco 11 ..... 1233—22 Battery Street Bldg.
Seattle 1 ..... 1301 Henry Bldg.
Tulsa 3 ..... 1625 Hunt Bldg.

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

Puerto Rico Builds New Water Improvement



An architect's rendering showing how the Loiza Filtration plant will look when completed.

IN PUERTO RICO, San Juan and its 12 suburban communities will receive water treated to meet modern standards of sanitation with the completion of the present 8,000,000,000-gallon reservoir and filtration plant. The improvement, part of a $40,000,000 investment, is identified as the Rio Grande de Loiza project.

Puerto Rico has plenty of water. Until recently, however, it has never before been able to supply it so treated that it is completely free from harmful impurities. This has seriously hampered the growth and progress of the island. The Loiza project will provide such water to the 400,000 residents of the greater San Juan area.

It will consist of a dam and a reservoir, a hydroelectric plant, a pumping station and a pipeline which will be in partial operation this year. Until the dam is built, the filtration plant will receive raw water from Loiza River by means of a temporary pumping installation, purify it at the rate of 10 mgd, and deliver it to the present distribution system.

The pipeline from the proposed Loiza filtration plant will be approximately 18,000 feet in length and 48 inches in diameter. It will be reinforced concrete cylinder-pressure pipe fabricated by the Lock Joint Pipe Company and installed by the Frederick Snare Corporation. The pipe is designed for three different working pressures of 150, 200, and 250 feet.

The Loiza filtration plant will be a rapid sand plant with an initial capacity of 30 mgd, and an ultimate capacity of 60 mgd. The filtration plant will provide aeration, rapid mix and flocculation, coagulation, and filtration.

Provisions will be made for both pre-chlorination and post-chlorination. Chemical feeding equipment for the application of alum, lime, and activated carbon will be included. The filters will consist of 12 units of 2.5 mgd each, and will be of the Wheeler false-bottom type.

The rapid-mix and flocculation equipment is being furnished by the Dorr Company; the filters and pumping equipment by the Roberts Filter Manufacturing Company. The consulting engineers for the Aqueduct Service in charge of the design and supervision of construction are Buck, Seifert and Jost of New York and San Juan.

This represents a forward step in the improvement of the island water supplies. Four years ago 40% of the water used in the island communities had no purification treatment. Today 64% is treated to meet standards typical of those in the United States, 23% is partially treated, and 13% is supplied from deep wells of approved sanitation standards.

In addition to this water improvement, the Aqueduct and Sewer Service has blueprinted a comprehensive sewerage system which will include a system of trunk lines, lateral sewers, pumping plant, and treatment plant.

The entire project is under the direction of Sergio Cuevas, Administrator of the Aqueduct and Sewer Service.

Holland, Mich., Develops New Well Field

THERE are 9,000 feet of Lock Joint prestressed concrete pipe reaching out into a new well field serving Holland, Mich. (population 14,346, 1940 census). The line varies in size from 16 to 24 inches and draws from three new wells equipped with pumps capable of supplying 7 mgd. The line feeds directly into the city distribution system and pumps against a pressure of about 60 pounds per square inch.

This line and the three new wells are designed to replace four older wells that, before 1946, were forced to yield 4,845 mgd maximum. This pumping was dangerously close to the limit of the pump capacity and was causing excessive lowering of the water table at some places.

The present field and the groundwater supply around Holland were explored through a survey made with the help of the U. S. Geological Survey on a share-the-cost basis with the state and the city. The well field is served by three Layne-Northern gravel-packed wells, each rated at 1,800 gpm.

The water extracted from the well field is fairly hard, averaging 350-400 ppm calcium hardness. The city plans a softening program, but is holding this in abeyance temporarily.

A Few Rules on Master Meters

WHERE should you locate master meters? And what limitations should you put on their use? Dave Purdie of Builders-Providence answered these questions at a meeting of the New Jersey section of the American Water Works Association, recently held in Newark. Here are his suggestions:

1. Locate the meters so that they will always be full of water. Meters are too dumb to distinguish between "fizz" and water.

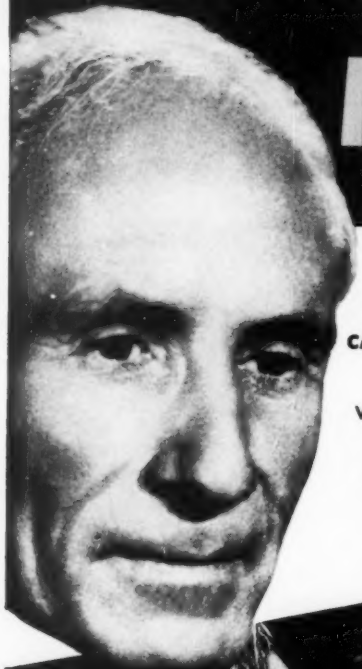
2. Be sure that the water is free of foreign objects. The meters aren't designed to measure accurately old shoes, overalls, pieces of lumber, large fish, or pump valves.

3. The meters may be installed on an inclined plane if necessary. They should be at a distance from fittings. Venturi meters should be 10 diameters away. Propeller-type meters can be located somewhat closer. And orifice meters should be somewhat farther away. Check valves are particularly disturbing to the meters.

4. Put the book of directions supplied by the manufacturer in the hands of the operator, not in the desk of the plant "brass hat."

5. Check meters at zero setting occasionally; also with whatever water column test heads that may be provided.

"From then on, we bought McCULLOCHS"



Ralph C. Puckett

CALIFORNIA TREE SERVICE, Los Angeles, says

"We really gave our first McCulloch chain saw a work-out. We tested it on big trees, little trees, branches, hard wood, soft wood, palm, roots, knots, and angle cuts. We found the McCulloch cut faster, was easier to use and carry, and saved money on sharpening. From then on, we bought McCullochs. We now have ten more like the first, and they're all the best saws we've ever used."

CUT OFF TREE AT 30 INCHES
The 5-hp McCulloch makes quick work of big trees. The Rip-Cross chain cuts cleanly in any direction—saves time on angle cuts and roots, as well as crosscut or rip.

LIMB AND BUCK FELLED TREE
Light weight (49 lb. as shown) and good design make McCullochs easy to handle, save muscles and time. Another time-saver on the job is easy sharpening and no setting of chain teeth.

SIX MODELS AVAILABLE
All prices f. o. b. Los Angeles

20-inch Chain Saw..$385.00

30-inch Chain Saw..$395.00

40-inch Chain Saw..$405.00

50-inch Chain Saw..$415.00

60-inch Chain Saw..$425.00

20-inch Bow Saw...$425.00

NATIONWIDE SALES AND SERVICE

McCULLOCH MOTORS Corporation
6101 West Century Boulevard
Los Angeles 45, California

Write FOR ILLUSTRATED LITERATURE OR NAME OF NEAREST DEALER

Modern Water Rates and Service Charges—XIV

Van Wert, Ohio

Rates (Quarterly)

First 670 cu. ft. or less	$2.00 minimum
670 to 6,000 cu. ft.	3.00 per 1,000 cu ft.
6,000 to 12,000 " "	2.60 " " "
12,000 to 20,000 " "	1.70 " " "
Over 20,000	.80 " " "

There is no hydrant rental charge, nor is there any charge made for fire protection.

General Data

Population served	10,500
Service (100% metered)	3,100
Hydrants	260
Valves	320
Miles of mains	35
Storage—Ground	3.0 mg
Elevated	0.5 mg
Supply	Wells
Treatment	None
Average demand	0.46 mgd
Plant capacity	0.75 mgd

Water Characteristics

$CaCO_3$	92 ppm
Fe	1.2 "
Mn	0
pH	7.2
Temperature	54° F.

Customer Costs (Monthly)

3,000 gals. (400 cu. ft.)	$ .67
5,000 " (667 " ")	.67
10,000 " (1,333 " ")	1.02

FRANCIS H. CONNORS
City Engineer

Harrisburg, Pa.

Rates

Annual Ready-to-Serve charges

⅝" meter	$ 7.00
¾" "	10.00
1" "	20.00
1¼" "	30.00
1½" "	44.00
2" "	80.00
3" "	180.00
4" "	320.00
6" "	720.00
8" "	1,280.00
10" "	2,000.00
12" "	2,880.00

Rate—50c per 1,000 cu. ft.

General Data

Population served	90,000
Services (99% metered)	23,560
Hydrants	1,365
Valves	3,875
Miles of mains	125
Supply	Rivers
Treatment	Rapid sand filter
Ave. demand	14 mgd
Plant capacity	40 mgd
Water character	
$CaCO_3$	4.4
Fe and Mn	Trace
pH	7.0
Temperature	40° to 74°

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$ .78
5,000 " (667 " ")	.91
10,000 " (1,333 " ")	1.25

These rates have been in effect since March 1936.

GEORGE ROBERTS
Water Superintendent

Weehawken, N. J.

and Fifty Other Communities

Rates (Quarterly Basis)

Fixed Charges

Meter Size	
½" or ⅝"	$ 1.92
¾"	3.30
1"	6.60
1½"	17.40
2"	24.00
3"	54.00
4"	78.00
6"	150.00
8"	240.00
10"	276.00
12"	400.00
16"	600.00
30"	1,800.00

These do not include any charge for water used. All water supplied is charged for in accordance with the following sliding schedules of rates which vary in the different districts as follows:

New Milford District
(Low-Service Direct Pumpage)

First 40,000 cu. ft. in the year	$1.68 per 1,000 cu. ft.
From 40,000 to 400,000 cu. ft.	1.56 " " " "
From 400,000 to 4,000,000 " "	1.44 " " " "
Over 4,000,000 cu. ft.	1.20 " " " "

New Durham Low-Level District and Weehawken High-Service District (Booster Pumping)

First 40,000 cu. ft. in the year	$2.16 per 1,000 cu. ft.
From 40,000 to 400,000 cu. ft.	1.80 " " " "
From 400,000 to 4,000,000 " "	1.56 " " " "
Over 4,000,000 cu. ft.	1.20 " " " "

Englewood High-Service District—High-Pressure Direct Pumpage

First 40,000 cu. ft. in the year	$2.88 per 1,000 cu. ft.
From 40,000 to 400,000 cu. ft.	2.04 " " " "
Over 400,000 cu. ft.	1.80 " " " "

When service is discontinued owing to lack of occupancy, non-payment of bills, or violation of company's rules, charges are made as follows:

For turning off and turning on water at the curb	$1.92
When water is turned off at the main, involving excavation in a public street	9.60

A charge for public fire service is made on an inch foot basis, the rate being 1c per inch diameter per foot of main applicable to all distribution mains 4 inches and larger which were in place April 28, 1917, and to mains 6 inches and larger laid thereafter. This charge is also applicable to the proportion of the transmission system utilized in serving the particular municipality.

An annual maintenance charge of $12.00 is made for each public fire hydrant.

The charges for private fire service are as follows:

Sprinkler connections with hose or hydrants attached to them are specially metered, and the charge is as follows, based on the size of meter used:

Meter Size	
3"	$ 54 per quarter
4"	78 " "
6"	150 " "
8"	240 " "
10"	276 " "
12"	400 " "

Sprinkler connections without hose or hydrants connected to them are specially metered, and the charge is as follows, based on the size of meter used:

Meter Size	
3"	$ 32.40 per quarter
4"	46.80 " "
6"	90.00 " "
8"	144.00 " "
10"	165.60 " "
12"	240.00 " "

No water is permitted to be used through these sprinkler connections except for testing purposes and in case of fire. No additional charge is made for water used during a test or for extinguishing a fire.

The 53 communities served by the Hackensack Water Co are Alpine, Bergenfield, Bogota, Carlstadt, Cliffside Park, Closter, Cresskill, Demarest, Dumont, East Rutherford, Edgewater, Emerson, Englewood Englewood Cliffs, Fairview, Fort Lee, Guttenberg, Hackensack, Harrington Park, Hasbrouck Heights, Haworth, Hillsdale, Leonia, Little Ferry, Lodi Borough (part of), Maywood, Moonachie, New Milford, North Bergen, Northvale, Norwood, Old Tappan, Oradell, Palisades Park, Paramus, Ridgefield, Ridgefield Park, River Edge, River Vale, Rochelle Park, Rutherford Secaucus, South Hackensack, Teaneck, Teterboro, Tenafly, Union City, Wallington (part of), Washington Township, Weehawken, Westwood, West New York, and Wood-Ridge.

EMILE J. FRICKER
Vice-President
Hackensack Water Company

Milton, Mass.

Rates (Quarterly Basis)

Minimum charge, $2.50. Allows 1,000 cu. ft. of water. All in excess, 20c per 100 cu. ft.

General Data

Population served	21,440
Services (100% metered)	5,438
Hydrants	767
Valves	1,991
Miles of mains	100
Supply	Boston Metropolitan District
Average demand	1 mgd

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$ .97
5,000 " (667 " ")	1.50
10,000 " (1,333 " ")	2.87

Rates were lowered in 1946 reflecting an adjustment in District charges to the town.

WILLIAM MELLEY, *Superintendent*

Norfolk, Va.

Rates

Service charge for each meter per quarter:

⅝" meter	$ 1.50
¾" "	2.00
1" "	4.00
1½" "	9.00
2" "	12.50
3" "	25.00
4" "	45.00
6" "	100.00
10" "	315.00
12" "	450.00

Metered Charge

Within city

First	300,000 gallons	25c per 1,000 gals.
Next	900,000 "	15c " " "
"	25,800,000 "	12½c " " "

Provided gross consumption is over 75,000,000 gallons per quarter.

All over 27,000,000 gallons 12½c per 1,000 gals.

Provided gross consumption is over 75,000,000 gallons per quarter.

Outside city

First 300,000 gallons	50c per 1,000 gals.
All over 300,000 gallons	Billed same as city

Flat Rate Charges

$12.00	per year for the first faucet
3.00	" " " " closet
1.00	" " each additional closet
3.00	" " the first bathtub
1.00	" " each additional tub
1.00	" " wash stands
3.00	" " laundry tubs

Outside city flat rates are 100% increased

Unfiltered water is sold at the rate of 14c per 1,000 gallons.

General Data

Population served		325,000
Services (94% metered)		46,320
Valves		6,542
Miles of mains	Distribution	368.8
	Raw water	72.5
Storage	Raw	9 billion gallons
	Treated	9 million "
Supply		Reservoir
Treatment		Alum, chlorine, lime, activated carbon
Average demand		36.2 mgd
Plant capacity		56 mgd

Water Characteristics

	Raw	*Treated*
$CaCO_3$	45 ppm	70 ppm
Fe	0.5 "	0.1 "
Mn	0.1 "	0.0 "
pH	6.8 "	8.3-8.6
Temperature	60° F.	60° F.

Customer Costs Per Month (¾" Meter)

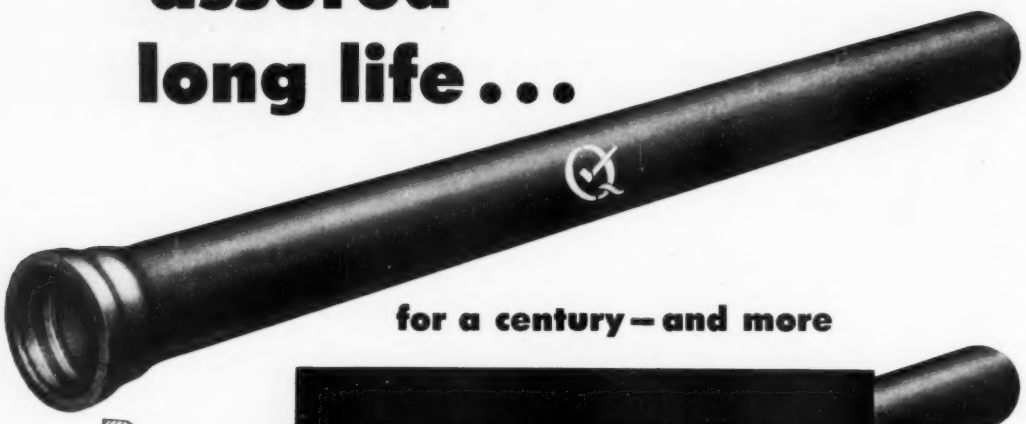
Inside city

3,000 gals. (400 cu. ft.)	$1.25
5,000 " (667 " ")	1.75
10,000 " (1,333 " ")	3.00

These rates are effective as of December 30th, 1948.

R. W. FITZGERALD, *Superintendent*

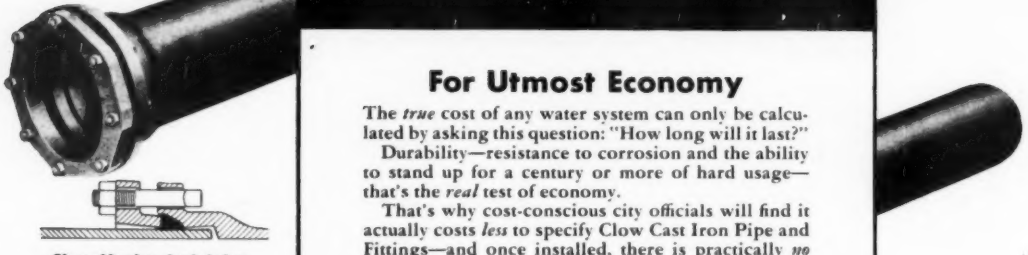
assured long life...



for a century—and more

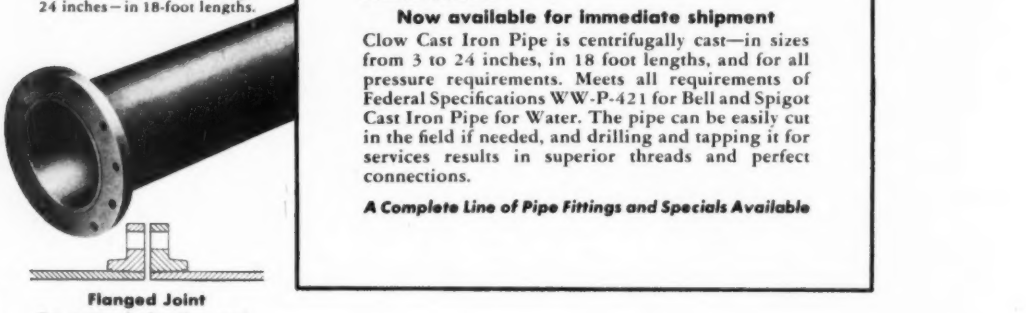
Bell and Spigot Joint

Most widely-used and best-known type of cast iron pipe joint is the standard water bell—designed for calked lead make-up. Sizes 3 to 24 inches inclusive—in 18-foot lengths.



Clow Mechanical Joint

A time-saving, easily installed mechanical cast iron pipe reaches the job complete with all joint materials. Sizes from 3 through 24 inches—in 18-foot lengths.



Flanged Joint

For exposed pipe line work. Flange dimensions and drilling conform to requirements of A. S. A. Class 125 for flanged fittings and valves. Sizes 3 through 24 inches—lengths up to 18 feet.

CLOW CAST IRON
pipe and fittings

For Utmost Economy

The *true* cost of any water system can only be calculated by asking this question: "How long will it last?"

Durability—resistance to corrosion and the ability to stand up for a century or more of hard usage—that's the *real* test of economy.

That's why cost-conscious city officials will find it actually costs *less* to specify Clow Cast Iron Pipe and Fittings—and once installed, there is practically *no* maintenance, repair or replacement required. Calculate *your* costs on a long-term basis. You'll discover Clow Cast Iron Pipe and Fittings are your City's best investment.

Now available for immediate shipment

Clow Cast Iron Pipe is centrifugally cast—in sizes from 3 to 24 inches, in 18 foot lengths, and for all pressure requirements. Meets all requirements of Federal Specifications WW-P-421 for Bell and Spigot Cast Iron Pipe for Water. The pipe can be easily cut in the field if needed, and drilling and tapping it for services results in superior threads and perfect connections.

A Complete Line of Pipe Fittings and Specials Available

National Cast Iron Pipe Division, Birmingham, Ala.; subsidiaries Eddy Valve Co., Waterford, N. Y.; Iowa Valve Co., Oskaloosa, Iowa.

JAMES B. CLOW & SONS

201-299 North Talman Avenue • Chicago 80, Illinois

CAST IRON

Sewerage and Sewage Treatment

How Hackensack, N. J., Repaired a Digester

By ARTHUR LEHMANN
Superintendent of Sewage Treatment
Hackensack, N. J.

EARLY last spring the mixers in our primary digesters began causing trouble. We became aware of difficulty when a mild knock developed on each revolution of the mixer.

Our crew hauled out the mixer shaft, using a hoisting mechanism that is normally utilized to remove the heating coils. Inspection of the lower journal end of the shaft showed it to be badly worn. We realized that we could repair the shaft but not the bearing without emptying the digester itself.

Consequently, after exploring other methods of mixing the raw and digesting sludge, we decided that the only practical course was to get a new bearing and go to work putting it in place.

The first step was to connect a 450-gpm Fairbanks-Morse centrifugal supernatant pump, located in the near-by filter-building basement, to the sludge-withdrawal line. We secured it to the bottom of the tank by a 4-inch suction hose. The pump was approximately 18 feet above the bottom of the tank and 9 feet below the normal sludge level.

First 6 Feet of Sludge Removed

The pump successfully removed the first 6 feet of tank contents. To remove any more of the sludge required diluting it to make it thin enough to handle. To do this we added effluent continuously by an ex-auxiliary fire-pump connected to the tank inlet. This allowed us to pump out a mixture of sludge and water continuously, until the solids in the pump discharge became negligible. By these means we lowered the sludge level to within 7 feet of the bottom.

To avoid a gas explosion we filled the tank with water during the operation and then shut off the gas line to purge the tank of gas. However, the remaining sludge formed enough gas to create an explosive mixture with the air drawn in. This condition persisted for nearly two weeks in spite of ventilation provided during the day by a gasoline-driven blower located a safe distance from the tank.

Persistent efforts to pump out the remaining 7 feet of sludge proved futile. The quantity amounted to about 120 cubic yards. When the gas contents of the tank were finally found safe by tests with an explosion meter, we discovered why. The surface of the material was so thick and tough it looked like cotton batting. Underneath it was a thick scum that could be handled with a pitchfork.

The mixture appeared as though it could be handled neither as a liquid nor as a solid. Removal of the material by crane seemed impractical because of the construction of the digester. Nor were we enthusiastic about putting men in the digester to load buckets by hand, to say nothing of the cost and time involved. The only course open seemed to be that of continuing the seemingly futile task of dilution and pumping. This was rendered more difficult by the presence of large quantities of fine silt under the scum blanket. However, persistence finally paid off and we were able to pry out the remainder.

Other Repairs Possible

Having the tank empty gave the crews the opportunity to make other repairs and improvements which otherwise would not have been possible. Cracks at the junction of the roof and walls leaked gas and seriously impaired the gas supply. These were treated by a roofing contractor with a bituminous emulsion primer and plastic asphalt cement reinforced with a coated membrane. Since this is on the interior surface, we have every reason to believe that they will effectively seal the cracks, although it may be necessary to protect the exterior from water seeping in.

The vertical heating coils, 28 feet long, of 2½-inch and 3-inch pipe, have been cleaned and descaled. Since inaugurating the annual cleaning of these coils we find the sludge scale easier to remove, although it still forms to a thickness up to 3/16ths of an inch. If the coils are not cleaned annually, they fail to maintain the normal tank temperature by 10 or 15 degrees.

After the plant was started, more than eight years ago, Bristol recording thermometers were purchased for both tanks. Until the tank was emptied, it had not been possible to install e sensitive element. Now it was easily and safely installed with an air-driven star drill.

Although the job was time-consuming and had elements of risk that had to be eliminated, we feel that it was worthwhile. We probably will do the same job on the other primary digester next year..

Horton Appointed by Sanitation Commission

The Ohio River Valley Water Sanitation Commission, the new regulatory agency for aiding states of the Ohio River Basin in stream clean-up programs, has appointed Robert K. Horton to its staff. The Commission headquarters are in Cincinnati.

New Plant Under Way for East Providence, R. I., Area

THE Blackstone Valley Sewer District Commission, serving the Rhode Island towns of Central Falls, Pawtucket, East Providence, Cumberland, and Lincoln, starts construction this spring of an extensive system of intercepting sewers and a sewage-treatment plant designed to abate pollution in the Rhode Island waters. Treatment of the sewage will involve sedimentation, separate sludge digestion, and chlorination. The action follows legislative measures establishing the new commission, and a public referendum approving a $5,000,000 sewer-district project. Additional provisions of the act insure self-liquidation of the entire cost of construction and operation.

The District covers 55 square miles and is heavily industrialized and well built up. Twenty-four per cent of the state's industry is located within the District, which covers only 7% of the state's land area.

William J. Halloran is Chairman of the District, C. G. Hammann is Chief Engineer, and A. A. Bonvicin is Executive Secretary. Metcalf and Eddy are the engineers designing and supervising construction of the new improvement.

BIG YELLOW MACHINES THAT SAVE TAXPAYERS' MONEY

If there's one indispensable tool in municipal work, it's the motor grader. And throughout the world the "Cat" Diesel Motor Grader is recognized as the standard machine of its kind.

Here are a few of the many reasons for this preference:

1 Engine, transmission and complete motor grader built by "Caterpillar."

2 Excellent balance between weight and horsepower for maximum performance in second gear.

3 Solid aluminum alloy connecting rod and main engine bearings do away with bonding problems.

4 Mechanical controls always give sure, smooth action.

5 Air-cooled oil keeps lubricant at top efficiency.

6 Scientific design gives the blade proper curvature for rolling instead of pushing action.

7 Constant-mesh transmission allows shifting on the run — without gear clashing.

8 Operators like easy handling and feel-of-the-road steering.

Most important of all is the record of dependability and long life made by these big yellow machines, backed by the fine service of "Caterpillar" dealers. *99% of all Motor Graders built by "Caterpillar" are still in use!*

CATERPILLAR TRACTOR CO., Peoria, Ill.

• *One of a pair of "Caterpillar" Diesel No. 112 Motor Graders owned by the City of Albuquerque, N. M. The 70-hp. No. 112 does all kinds of work, including ditching, scarifying, bank sloping, spreading oil mix, and, in northern cities, snowplowing.*

CATERPILLAR
REG. U. S. PAT. OFF.
DIESEL ENGINES • TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

Street Cleaning and Refuse Disposal

Tree-Stump Grinder

A TREE-STUMP grinder was introduced to the public-works field at the winter meeting of the American Public Works Association, New York-New Jersey Chapter.

The grinder was invented by Leonard F. Anderson, Verona, N. J., tree expert, and was demonstrated by the Homelite Corp., Port Chester, N. Y.

The grinder resembles a large, power-driven rotating cutting tool. The equipment can grind the stump to a level 5 inches lower than the surface of the ground.

Leonard F. Anderson, inventor of the stump grinder, shows how it works to Ray Murphy, City Engineer, Rye, N. Y.

Richmond Develops Small-Animal Hearse

RICHMOND, Va., has recently developed and put into service a modern insulated, fully enclosed body that is mounted on a pick-up truck, which is used to convey dead animals picked up throughout the city.

The dimensions of the body are 72 inches long, 48 inches wide, and 36 inches high. The outside of the body is 20-gauge galvanized steel, and the inside of the body is heavy-gauge stainless steel. Insulation consists of two inches of rockwool; the doors are refrigerator-type. The entire body is painted the same color as the truck. The exterior appearance is neat.

Dry ice, used for refrigeration in warm weather, is placed in an open-mesh sack and hung from the ceiling inside the truck. This allows for air movement around the dry ice and thus lowers the temperature in the entire truck body.

Richmond's "small-animal hearse."

The city picks up an average of 1,500 dead animals per month. This type of equipment has greatly improved this very necessary sanitary service.

A large measure of credit is due to Mr. William M. Brown, Chief Clerk of the Bureau of Refuse Collection, who aided in designing and developing the specifications for this new type of body.

ROBERT S. HOPSON
Bureau of Refuse Collection
Richmond, Va.

Sanitary Landfill Method Grows

AT THE first of this year there were 122 cities in 34 states, one territory outside the United States, and two Canadian cities using the Drott Bull Clam shovel to implement their refuse-disposal programs by the sanitary-fill method. A total of 158 of these units were in use in these cities. The total population served by the units is 6,752,192.

The cities range from Rockville, Md. (population 2,047), to Cincinnati, Ohio (population 455,610); this city, however, does not dispose of all refuse by the sanitary-fill method. Richmond, Va. (population 193,000), has the largest number, with six units in operation. Manila, capital of the Philippine Islands, is one city outside the United States that uses it, and there are two cities in Ontario, Canada. The list of those using the units is as follows:

No.	City	Population
	ALABAMA	
1	Birmingham	267,583
1	Florence	15,043
1	Huntsville	2,584
1	Gadsden	37,000
1	Jasper	6,847
1	Montgomery	78,084
1	Opelika	8,487
	CALIFORNIA	
1	Lodi	11,097
1	Riverside	34,696
1	Santa Monica	53,500
1	Turlock	4,839
	COLORADO	
3	Denver	322,412
	FLORIDA	
1	Winter Park	4,715
	GEORGIA	
1	Athens	20,650
3	Columbus	53,280
1	DeKalb Co.	86,942
1	Fulton Co.	392,886
1	Marietta	8,677
1	Muscogee Co.	75,494
	ILLINOIS	
1	Lincoln	12,752
1	Rockford	84,638
1	Winnetka	12,430
1	Wood River	8,197
	INDIANA	
1	Muncie	49,920
	IOWA	
1	Council Bluffs	41,439
	KANSAS	
1	Garden City	6,285
1	Hutchinson	30,013
1	Pratt	12,348
1	Topeka	67,833
	KENTUCKY	
1	Danville	6,734
1	Hopkinsville	11,724
1	Lexington	49,304
1	Owensboro	30,245
1	Versailles	2,548
	LOUISIANA	
1	Alexandria	27,066
1	E. Baton Rouge Parish	88,415
1	Lafayette	19,210
	MAINE	
1	Augusta	19,360
	MARYLAND	
1	Rockville	2,047

No.	City	Population
	MASSACHUSETTS	
1	Brookline	49,786
1	Winthrop	16,786
	MICHIGAN	
1	Battle Creek	43,453
1	Bedford Tnshp.	5,487
1	Highland Park	60,810
2	Marshall	5,253
1	Wyandotte	30,618
	MINNESOTA	
1	Willmar	7,623
	MISSISSIPPI	
2	Jackson	62,107
1	Natchez	15,296
	MISSOURI	
1	Columbia	18,399
1	Kansas City	121,458
1	Sedalia	20,428
	NEBRASKA	
1	Kearney	9,643
	NEW MEXICO	
2	Albuquerque	35,449
1	Roswell	13,482
	NEW YORK	
1	Newburgh	31,883
	NORTH CAROLINA	
2	Burlington	12,198
1	Chapel Hill	3,654
1	High Point	48,495
1	Raleigh	46,897
1	Rockingham	3,657
1	No. Wilkesboro	4,478
1	Salisbury	19,037
1	Winston-Salem	79,815
	OHIO	
1	Athens	7,696
1	Ashtabula	21,405
1	Cincinnati	455,610
1	Ironton	15,851
1	Middletown	31,220
1	Parma	16,365
1	Portsmouth	40,466
1	Washington Court House	9,402
	OKLAHOMA	
1	Bartlesville	16,267
2	Oklahoma City	204,424
1	Shawnee	22,053
2	Tulsa	142,157
1	Woodward	5,406
	ONTARIO	
1	Woodstock	12,325
1	Barrie	7,500
	RHODE ISLAND	
1	Bristol	11,159

No.	City	Population
	S. CAROLINA	
1	Anderson	19,424
2	Greenville	34,734
1	Columbia	62,396
1	Greenville	34,734
1	Spartanburg	32,249
	S. DAKOTA	
1	Rapid City	13,844
	TENNESSEE	
2	Bristol	14,004
1	Elizabethon	8,516
1	Johnson City	25,332
1	Jackson	62,107
1	Kingport	14,404
3	Knoxville	111,580
3	Nashville	167,402
	TEXAS	
1	Alice	7,792
1	Brownwood	13,598
1	Bryan	11,842
1	Colorado City	5,213
5	Dallas	294,734
1	Lubbock	51,672
2	El Paso	96,810
5	Fort Worth	177,612
1	Highland Park	10,288
1	Marlin	6,542
1	Mineral Wells	6,303
1	Mission	5,982
1	Monahans	3,944
1	Orange	7,472
1	Pasadena	3,436
1	San Angelo	25,802
4	San Antonio	253,854
1	Sherman	17,156
1	Temple	15,344
1	Texas City	5,748
1	Waco	55,982
	UTAH	
1	Provo	18,071
	VIRGINIA	
1	Charlottesville	19,400
1	Lynchburg	44,541
6	Richmond	193,042
1	South Boston	5,252
	WASHINGTON	
1	Puyallup	7,889
1	Sunnyside	2,368
	WISCONSIN	
1	Hudson	2,987
1	Marshfield	10,359
1	Sturgeon Bay	5,439
	PHILIPPINE ISLANDS	
1	Manila	627,000

WHY CITIES PREFER GAMEWELL

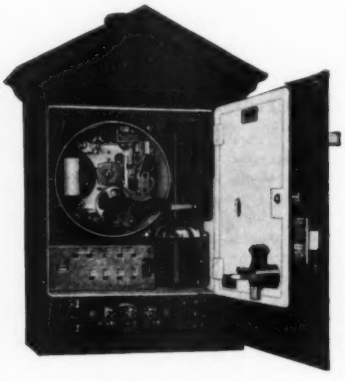
. . . EXPERIENCE . . .

John N. Gamewell, in 1855, purchased the original development of what has come to be known as the GAMEWELL fire alarm system. The founder of the industry and his successors, THE GAMEWELL COMPANY, have since specialized in the development, manufacture and installation of fire alarm, police, and other emergency signaling systems for municipalities, industrial, institutional and governmental properties.

The experience acquired during 94 years is of inestimable value to users of GAMEWELL fire alarm systems. It has resulted in the production of signaling systems of remarkable reliability and unparalleled durability upon the unfailing performance of which cities rely.

In evidence thereof GAMEWELL fire alarm systems installed in Manila during 1903, and in Singapore during 1910, were largely destroyed during the recent war — *for the replacement of the war-damaged systems both cities turned to* GAMEWELL.

The Original GAMEWELL Fire Alarm Box



Modern Fire Alarm Box — the GAMEWELL Three-Fold Type of 1949

THE GAMEWELL COMPANY

NEWTON UPPER FALLS 64, MASSACHUSETTS

IN CANADA: NORTHERN ELECTRIC COMPANY, LTD., MONTREAL

Public Safety

St. Louis Wants Speedy Justice In Its Courts

FOLLOWING issuance of a hard-hitting report on the local crime situation by the St. Louis Chamber of Commerce, the St. Louis Crime Commission, aimed at "good law enforcement and speedy justice," has been incorporated.

The commission, formed along the lines of similar bodies in Chicago, Cleveland, Baltimore and Washington, is designed to keep residents of St. Louis and St. Louis County informed as to law enforcement by the various agencies and officials involved and to conduct scientific research as to prevalence and causes of crime. Temporary officers are: George C. Smith, president of the St. Louis Chamber of Commerce; Scott R. DeKins, vice-president of the Chamber, and Frank E. Lawrence, Jr., Chamber secretary.

The crime report which preceded formation of the crime commission severely criticized the growing practice of courts in accepting pleas of guilty for lesser offenses than those charged and said that in St. Louis, at least, the city is "being governed in the field of crime by men and not by laws. Under such a system, carrying concealed weapons becomes malicious mischief; stealing an automobile becomes merely the offense of climbing in and about an automoile without the owner's consent; larceny becomes second-degree petit larceny; burglary becomes petit larceny; assault with intent to kill, becomes common assault and the penalty 10 days in jail or a small fine."

With such practices as these, the report indicated, "crime can and often does pay in St. Louis." It is this situation which the new Crime Commission will tackle as one of its first big tasks.

Drunkometers Have Gone Over

AFTER six beers, the average American is a menace behind the wheel of an automobile, according to law-enforcement officers using Drunkometers for chemically testing the breath of motorists suspected of being intoxicated. An increasing number of cities and states are using Drunkometers, the American Municipal Association reports.

Chicago; Miami; Richmond, Va.; Peoria, Ill.; Montgomery, Ala.; Fort Lauderdale and Hollywood, Fla., and Plainfield, N. J.; are among the cities that started use of Drunkometers in 1948. At least 125 cities use Drunkometers or similar chemical methods to settle drunk-driving charges. Some 22 state law-enforcement agencies now use the Drunkometer, while 28 states approve the device as competent court evidence.

If a suspect has as much as 15% alcohol in his blood, he's drunk, and he's wasting his time telling the judge that he only had two beers. To make such a score he must have drunk at least six ounces of 100-proof whisky or had at least six 12-ounce bottles of beer.

The Drunkometer, made by the Stephenson Corporation, Red Bank, N. J., facilitates the determination of the alcoholic content of the blood with accuracy. The suspect simply blows a balloon full of air, or if he refuses, the machine has a device that scoops up his breath when he exhales. Then this breath is passed through a series of tubes containing chemicals. Reaction of the chemicals determine alcoholic content of the suspect's blood. In Washtenaw County, Mich., for instance, only one accused drunken driver was acquitted out of 84 brought before the court. Prior to adoption of the machine, only 62% of all persons accused of driving while drunk were convicted.

Chemical tests to decide intoxication are now a part of traffic training.

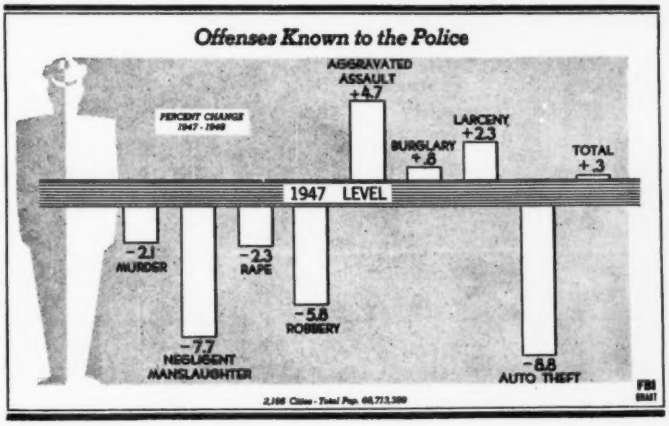
Crimes of 1948

URBAN crime managed to hold its own in 1948, though the increase over 1947 in 2,166 cities was only .03%. There were decreases in murder, negligent manslaughter, rape and auto theft; increases in aggravated assault, burglary, and larceny.

In 373 cities with a population over 25,000, aggravated assaults and rapes reached about 69 and 50%, respectively, over the pre-war average. Over half (57.4%) of the rapes were forcible, the others statutory. Of the robberies, 65% were highway, 26% in places of business, 5% were in homes. Of the burglaries, 39% involved residences with 66 2/3% night burglary.

Fingerprint-arrest records received at the FBI totaled 759,698 and over half were found to be already in the files.

Auto thefts declined in every geographic division and in cities of each population group. Ninety-three percent of stolen automobiles were recovered by the police, as compared with only 21% for other stolen property.



THE MOST IMPORTANT MOTOR

A New Kind of Truck to Reduce the Per Unit Cost of Delivery . . . Increase Payload • Save Time • Add Safety • Lower Maintenance

SAVES RUNNING TIME—Easy to maneuver and park in traffic because of shorter wheelbase, shorter overall length, wider front axle.

SAVES UNLOADING TIME—Driver gets in and out more quickly—easily—because of curb-level step, wider doors, roomier cab, nothing to climb over.

SAFER IN TRAFFIC—Driver sits in commanding position with wider vision. Sees down to road level only 7 feet ahead; improved up-view for traffic lights.

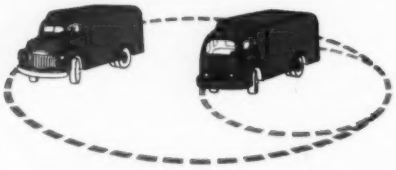
LOWER COST MAINTENANCE—Power-lift Cab saves inspection and servicing time. "Bench-height" front end accessibility improves quality of work done.

LONGER LIFE—Style obsolescence is eliminated by the functional, ultra-modern design. Cab structure is completely bonderized for longer life.

SUPER POWER QUALITY—All the proved dependability of White Super Power Truck units. Engineered for long life . . . low maintenance . . . fuel economy.

CURB-LEVEL STEP to roomy cab cuts delivery "stop" time.

SUPERIOR VISION in all directions.



SHORTER TURNING RADIUS reduces maneuvering time.

ENGINEERED FOR MORE DELIVERIES IN THE WORKING DAY . . . AT LESS COST

FOR 50 YEARS THE

TRUCK ADVANCE IN YEARS

POWER LIFT CAB provides complete accessibility to mechanical parts in less than 30 seconds at the turn of a key. Actuating mechanism is a rugged version of the dependable device operating landing gear of airliners.

HERE IS THE COMPLETE ANSWER in every engineering detail to the problem of getting more payload delivered per working day, at less cost per unit of delivery. Much safer to operate in modern traffic ... because of the design and construction, and the forward position of the driver, with greatly improved vision in all directions. Maintenance is quick and easy ... and lower in cost ... because of complete accessibility of mechanical parts provided by the unique "turn-of-a-key" power lift cab. All the quality and proved dependability of White Super Power truck units are incorporated in the White 3000. If you operate trucks in your business, it will pay you to get the complete time- and cost-saving story from your local White Representative.

THE WHITE MOTOR COMPANY
Cleveland 1, Ohio, U. S. A.
THE WHITE MOTOR COMPANY OF CANADA LIMITED
Factory at Montreal

White
SUPER POWER 3000

GREATEST NAME IN TRUCKS

Adams Advantages Pay Off for

CITY OF VICTORIA, TEXAS

ONLY **Adams** HAS ALL THESE FEATURES

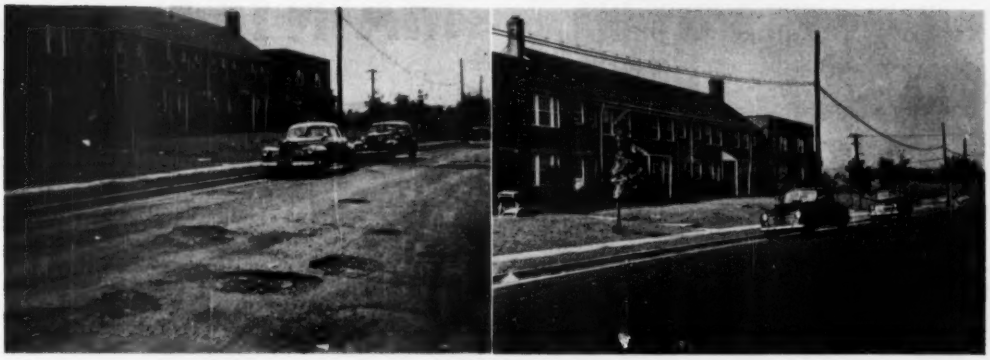
Wm. Carroll, Street Supt., city of Victoria, Tex., says "I've operated Adams Road Machinery for 30 years and I think it's **tops**. We use our Adams Graders for all types of grading, earth-moving, and road and street maintenance work. You can't beat our No. 312 for power in its class and I also like the good visibility of the blade, the ease of handling and the high-arch axle for clearing large windrows." . . . Let your local Adams dealer show you the size grader best suited to speed work, cut costs, in your city.

J. D. ADAMS MANUFACTURING CO., INDIANAPOLIS, IND.

• Eight Overlapping Forward Speeds • High-Arch Front Axle for Clearance • Push-Button Starting from Cab • Positive Mechanical Controls • Wide Range of Blade Adjustments • Exceptional Blade Clearance in All Operating Positions • Balanced Weight Distribution • Easy Access for Fast Servicing • World-Wide Dealer Service

Street Construction & Maintenance

Before and After



This striking contrast shows an Alexandria, Va., street before and after being paved with soil-cement. A 1½-inch wearing surface covers the soil-cement base.

Calcium Chloride on Approved List for Concrete Pavement Cure

THE use of calcium chloride for curing concrete remains on the approved list in the State of Delaware. According to a paper delivered at the American Road Builders' Association annual conference in Washington recently, test results re-establish the value of calcium chloride as an alternate method of curing. Past results obtained in Delaware have been uniformly satisfactory for a number of years. Contractors almost exclusively use the alternate method because it reduces curing costs and increases the efficiency of their organization. The paper discussing these findings was delivered by Frank Bowery, Testing Engineer in the Delaware State Highway Department, and H. C. Vollmer, formerly research engineer in the National Bureau of Standards.

The tests were conducted on approximately one mile of new concrete placed during August 1948, at a temperature range of 85-95° F. with a relative humidity averaging 60%. The concrete was placed in two lanes, each 11 feet wide, with dummy-type contraction joints at 90-foot intervals. No expansion joints were used. The cement was non-air-entraining. There were 1.67 barrels of cement per cubic yard used to produce a concrete with a slump of 2 to 3 inches and a water-cement ratio of five gallons to a bag of cement. A standard brand of flake calcium chloride was added in the dry form to the batch at the paver skip. The amount of the calcium chloride varied between 1½ and 2% of the cement weight.

The calcium chloride curing significantly improved the compressive and flexual strengths as compared to preliminary 24-hour wet-burlap curing. The percent increases in field strengths obtained with the calcium chloride curing were comparable to those obtained from previously made laboratory tests. Compared to the wet-burlap curing, the strengths obtained with the field tests were somewhat lower than for the laboratory tests at three days, and somewhat higher at seven and twenty-eight days.

Denver's Heavy Asphalt for Street Sealcoating

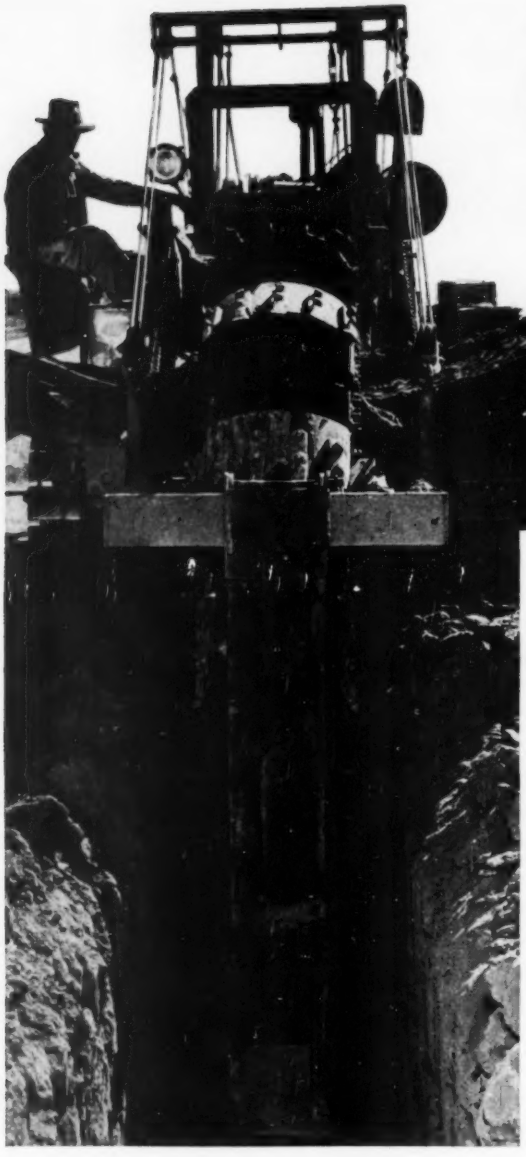
IN Denver, Colo. (population 287,861, 1940 census), the winters of ice and snow and the hot summer sun require a heavier asphalt for street sealcoating. Last year's program, covering 155 miles of street, used RC-4 cutback for this work.

Experience has shown here that this grade of asphalt is heavy enough to hold the chips and other aggregate under these unfavorable conditions, and yet quick-drying so as not to hold up traffic for any long period of time.

A city-owned 1,000-gallon Littleford distributor places the asphalt at the rate of 0.10 to 0.25 gallons per square yard as conditions require. On this goes a layer of chips at 22 to 25 pounds per square yard.The chips haxe a maximum size of ½ inch. A minimum of 60% must be fractured pieces.

The work comes under the direction of C. B. Berry, Director of Public Works, City and County of Denver.

A Denver street has stood up well as the result of heavy asphalt sealcoating.



"Ditch" HIGH MAINTENANCE COSTS

Keep your engines clean by lubricating with Texaco Ursa Oil X**

GIVE your heavy-duty gasoline and Diesel engines the protection of *Texaco Ursa Oil X***, and they'll give you many extra hours of trouble-free, full-powered operation between overhauls . . . extra savings in fuel and maintenance.

*Texaco Ursa Oil X*** is a fully detergent and dispersive oil with unusually high resistance to oxidation. It keeps engines *clean,* rings free and valves active. It protects bearings against corrosion — protects all parts against wear. Use it to increase operating efficiency and economy of *all* engines in service.

To assure additional maintenance savings, lubricate chassis parts of all your construction equipment with long-lasting *Texaco Marfak* . . . use *Texaco Marfak Heavy Duty* in wheel bearings . . . and protect crawler track mechanisms with famous *Texaco Track Roll Lubricant.*

Let a Texaco Lubrication Engineer show you how Texaco Products and the Texaco Simplified Lubrication Plan can help you cut costs on every job. Call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Tune in . . . TEXACO STAR THEATRE every Wednesday night starring Milton Berle. See newspaper for time and station

Check Your Wants and Mail Coupon

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write direct to the manufacturers, or circle the identifying numbers on this coupon and mail it to THE AMERICAN CITY MAGAZINE, 470 Fourth Ave., New York 16. We will see that catalogs are sent to you without expense or obligation.

6/49

817	818	819	820	821	822	823	824	825	826	827	828	829
830	831	832	833	834	835	836	837	838	839	840	841	842
843	844	845	846	847	848	849	850	851	852	853	854	855
856	857	858	859	860	861	862	863	864	865	866	867	868
869	870	871	872	873	874	875	876	877	878	879	880	881
882	883	884	885	886	887	888	889	890	891	892	893	894
895	896	897	898	899	900	901						

Name ..... **Position** .....

Address .....

Street Cleaners Appreciate Refuse-Can Carriers

817 The Tarco can carrier is a single-piece welded frame for one or two cans, with plain steel, solid rubber, or pneumatic tires. The carrier has full-swiveling caster wheels, a silent can clamp, safety warning flag, and it is light-running. Write for information to the Tarrant Mfg. Co., East Ave., Saratoga Springs, N. Y.

Plastilight For Civil Celebrations

818 A publication showing the use of decorative plastic lamp shades for civic celebrations and holiday festivities is now available from The Connecticut Plastilight Corp. of Stamford, Conn. *Lights Around the Calendar* illustrates the use of the plastic lamp shades on the street lights; designs are available for special celebrations.

Two Machines For Masonry Repairs

819 The Bondact process is a method of bonding new sand and cement mortar without anchoring material to existing concrete, brick, stone, tile, or other masonry surfaces. The Model No. 500 Bondactor is designed for work requiring small amounts of aggregate or frequent stopping. The No. 1,000 is for big jobs. Write for literature to the Air Placement Equipment Co., 2525 Southwest Blvd., Kansas City 8, Mo.

Eliminate Highway Weeds

820 The Weed-O-Matic has a spray bar that is elevated by the operator while the mechanism is in motion, facilitating the spraying of weeds that may be above or below the highway level. The Weed-O-Matic, manufactured by Spray Machines, Inc., Box 1299, Albuquerque, N. M., comes with the power unit, pump, hose line and reel, hand-spray bar and 16-foot highway spray bar mounted on a trailer.

Need a Rock Crusher?

821 The Kue-Ken crushes by pressure only, with no rubbing and with minimum abrasion, with the path of travel of the jaw plates squarely against the rock. The size of the crushed matter is easily controllable, and the machine works at 350 to 425 crushing strokes per minute. Write for Bulletin 5011, describing the Kue-Ken jaw crusher, to the Pennsylvania Crusher Co., Div. of Bath Iron Works Corp., Liberty Trust Bldg., Philadelphia 7, Pa.

Powered Pipe Cleaner

822 Over 2,000 feet of pipe can be cleaned from one opening by a new gasoline-powered Roto-Rod machine. It uses a solid steel rod 1,100 feet long pushed or pulled in the machine by power. A new 24-page illustrated booklet describing every feature of the machine, is available from Roto-Rooter Corp., 301 University Ave., Des Moines, Iowa.

Fabrics for Uniforms

823 The supplier of fabric for New York's police uniforms will be glad to supply information on worsteds for summer and winter uniforms, overcoats, and shirts. Write to American Woolen Co., 225 Fourth Ave., New York 3, N. Y.

Traffic Paint

824 Hanline Bros., Baltimore, Md., makes paint for traffic markings on roads and highways in white, medium yellow, orange, bright red, and black. Write for data about the paint that increases between-painting periods.

Cut Truck-Washing Time With These Brushes

825 Speed Wash fountain brushes soak, scrub, and rinse in one operation. Clean water flows from a hose through the handle and brush. Eight evenly spaced jets in the back of the brush equalize the pressure, and each stroke does a complete job of soaking, scrubbing, and rinsing. Write for literature to the Milwaukee Dustless Brush Co., 530 N. 22nd St., Milwaukee 3, Wis.

Automatic Sewage Regulators

826 Brown & Brown, Inc., Lima, Ohio, describes in Bulletin No. 81 the automatic sewage-regulating equipment that is designed to permit the diversion of sanitary flow into the intercepting sewer and to control the quantity of such diversion. The equipment is equally applicable to any hydraulic flow.

Playground Equipment

827 Burke-Built equipment for playgrounds is sturdy, strong, and planned for all playground-aged children. The line includes climb-a-rounds, swings, slides, see-saws, merry-go-rounds, turning bars, horizontal ladders. All wood and metal surfaces are smooth and all metal part are hot-dipped galvanized. Write for Catalog B to the J. E. Burke Co., Fond du Lac, Wis.

How Much Should You Charge For Water?

828 *Water Rates and Sewer Service Charges*, published by THE AMERICAN CITY Magazine, 470 Fourth Ave., New York 16, N. Y., is a 64-page booklet ($2.00) that gives details of the water rates of 77 representative American cities, and 15 sewer-service charges. In addition, the book discusses basic fundamentals in water and sewer rates—such as number and type of blocks, minimum charges, fire protection charges, and rates to out-of-city customers. Write for descriptive data giving further details of the book.

Street-Lighting Transformers

829 Street-lighting transformers are one of the five lines produced by The Standard Transformer Co., Warren, Ohio. Described in the new 16-page Bulletin, S-701-A, entitled *Street Lighting Transformers*, these transformers are of six types: manhole, pole base, aerial, branch line, series-multiple, and testing.

Badges for Municipal Officials

830 The C. G. Braxmer Co., Inc., 216 E. 45th St., New York 17, N. Y., will send you a circular illustrating its line of badges for police, fire, and other city, county, and state officials. The designs are available in a variety of finishes: bronze, nickel, chrome plate, silver or gold plate, sterling silver, and rolled gold.

Seals Prevent Tampering

831 A sealed water system prevents a loss in revenue that in many instances represents the yearly margin of profit. With a meter Union seal, the by-passed or reversed meter is a thing of the past. Write for literature about this and other styles to the United Seal Co., 450 S. Pearl St., Columbus, Ohio.

Solid or Broken Lines With This Traffic Marker

832 The Streme-Liner, manufactured by Samuel and Hirschberg, 204 Valentine St., Hackettstown, N. J., holds enough paint to cover 200 to 400 lineal feet, depending on the line width. Larger paint-storage equipment can be installed on the chassis. It paints over any type of surface, smooth or rough, and three adjustments permit fractional graduation in the line width from 3 to 8 inches. Excess air-pressure from the spray nozzle clears foreign matter from the path of the paint, and the Streme-Liner can paint almost flush to curbing and within 6 inches of head on obstructions.

(Continued on Page 27)

Photomap and matching Contour Map are typical of the Fairchild two-way mapping service used by many cities and now in process for Cincinnati and Hamilton County, Ohio.

with Fairchild's *two-way* aerial maps

SCARCELY A DAY GOES BY without your City Engineers being asked a question properly settled by referring to maps. That's why Fairchild provides two maps of the same area... one for planning and one for engineering. City Engineers can make decisions without sending a survey party into the field. You save time, money and unnecessary concern on the part of property owners.

THE FAIRCHILD METHOD provides you with a Photomap and a Contour Map. Nearly every problem can be planned from a Photomap and engineered from a Contour Map. In road development, for example, the Photomaps identify which property is least disturbed by various alignments. The Contour Maps are so accurate that City Engineers can select grades, curves, and estimate costs. Utility distribution can be planned. Fairchild's *two-way* method means accuracy... for every house and tree and acre of your City is revealed in complete and accurate detail.

WRITE for "Focusing on Facts"... a free booklet describing how Fairchild Aerial Survey Methods, developed over a twenty-five-year period, can help your City plan wisely for today and for tomorrow.

Fairchild AERIAL SURVEYS, INC.

Photogrammetric Engineers

224 E. 11th ST., LOS ANGELES 15, CALIF. • 21-21 FORTY-FIRST AVE., LONG ISLAND CITY 1, N. Y. • 73 TREMONT ST., BOSTON 8, MASS.

Your Catalog Supply Service

Please Use Coupon on Page 25

Valuable Booklet On City Planning and Mapping

833 Fairchild Aerial Surveys, Inc., 224 E. 11th St., Los Angeles 15, Calif., produces two-way aerial maps—one for planning and one for engineering—to eliminate field surveying prior to each decision. The contour maps are so accurate that engineers can even select grades, curves, and estimate costs. Write for booklet, "*Focusing on Facts.*"

New Hough Payloader

834 The new Hough Model HM Payloader tractor shovel operates under such severe job conditions as mud, sand, and rough terrain. It has a 1½-cubic-yard bucket capacity —and goes about its business with 76 hp behind it. Write for literature to the Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Ill.

Diesel Engines

835 Bulletin No. 1022, from the Sterling Engine Co., 1270 Niagara St., Buffalo 13, N. Y., describes the Viking Diesel Model VDS-6; 8-inch bore, 9-inch stroke, 6-cylinder, 2,714 cubic-inch displacement, from 190 hp at 700 rpm to 325 hp at 1,200 rpm. The fuel-injection system consists of individual pumps with each pump located at the center of the cylinder, actuated by camshaft.

High-Speed Production Of Blueprints

836 The Revolute M4, manufactured by the Paragon-Revolute Corp., Rochester 4, N. Y., exposes, develops, fixes, washes and dries blue, white, Vandyke, and blueline prints in one operation. The speed may be varied from 6 inches to 32 feet per minute. Write the Paragon-Revolute Corp., Rochester 4, N. Y.

New School Buildings

837 The Luria Engineering Corp., Dept. Y-32, 500 Fifth Ave., New York 18, N. Y., describes in a new brochure its line of standard, heavy, steel-frame one-story structures. These are not light-weight, temporary structures, but permanent buildings, flexible in design, size, and optional features to meet the exact requirements of any community. The brochure contains drawings and floor plans of six suggested Luria schools in both traditional and modern architectural styles.

Keep Water Lines Lime-Free Through Recarbonation

838 The Ozark-Mahoning Co., Tulsa, Okla., has issued a folder, No. SCR-1, which describes how its submerged combustion recarbonators produce carbon dioxide through the combustion of gaseous fuel under water at the point of absorption. Available in capacity sizes from 200 to 8,000 pounds of CO_2 per day (or larger, if desired), the equipment helps to keep lines encrustation-free and carrying at full capacity.

Oil-Burner Control

839 Mercoid Visaflame control for use with intermittent- or constant-ignition oil burners uses the light of the flame as a means of actuating the control system. It is a safety control that can be mounted as an integral part of the oil burner. Full explanation is contained in Bulletin V-14 of The Mercoid Corporation, 4201 Belmont Ave., Chicago, Ill.

Water Plants and Equipment

840 The Roberts Filter Mfg. Co., 660 Columbia Ave., Darby, Pa., will send you data on water-filtration plants and equipment—special water-treatment equipment, zeolite softeners, pressure filters, Wheeler false filter bottoms.

Digs and Loads

841 New Ottawa double-action, industrial, front-end loaders add excavating to an extensive repertory of material-handling operations. It digs, lifts, loads, levels, and spreads. For details and price, write Ottawa Steel Products, Inc., Industrial Div., Ottawa, Kans.

Clarifier for Sewage, Water Plants

842 Yeomans Bros. Co., Advertising Dept., 1417 N. Dayton St., Chicago 22, Ill., is offering an 8-page bulletin describing its clarifier, the Spiraflo, for water or sewage-treatment plants. The Spiraflo has a tangential inlet, vertical upward flow of sewage through a sludge blanket, and a new design for positive removal of grease, scum, and oil.

Repair Cracked Giant Castings

843 The Guth Co., McPherson, Kans., rebuilds diesel heads, pumps, and blocks of large size. When your diesel engine head breaks down, reduce delay loss by ordering a Guth rebuilt head, shipped in exchange for your broken casting. The company stocks, ready for immediate shipment, all models of diesel engine heads in general use.

9-Ton, Self-Loading Scraper

844 The D Roadster Tournapull manufactured by R. G. LeTourneau, Inc., Peoria, Ill., self-loads, hauls, and spreads its own load. It may be used with a pusher or without for graveling shoulders, access roads, detours, patching, filling mudholes, shortening curves, road repairs, stripping light overburden, drainage, clean-up work; other jobs it accomplishes are moving materials, stockpiling, leveling.

Personal Cleanliness Aid For Sewerage, Refuse Men

845 Any hazards of contamination to sewage-plant personnel from contact with the plant's products can be removed by washing the hands with Emulsept, an ammonium detergent germicide. Placed in suitable dispensers at each wash basin, the hands of personnel receive an emollient residual sanitizing effect from an odorless germicide that is sufficiently detergent to remove the toughest grease and soil. For an abstract of technical literature and other data ask for Technical Bulletin No. 13 from The Emulsol Corp., 59 E. Madison St., Chicago, Ill.

Street-Lamp Replacements

846 The Thompson hanger provides for low-cost, safe maintenance by lowering overhead lights to floor level for cleaning and lamp replacement. Unlatching and reconnecting require only a regulated pull and release on the lightweight chain, which lowers and raises the fixture. The Thompson Electric Co., 1101-20 Power Ave., Cleveland 14, Ohio.

For Street Maintenance

847 Melting kettles, asphalt tool and asphalt surface heaters for binder cement, asphalt, and tar, road- and oil-distributor burners for road paving or repair work may be obtained from the Hauck Mfg. Co., 112-122 Tenth St., Brooklyn 15, N. Y.

Chlorine and Chlorine Products

848 John Wiley Jones Co., Caledonia, N. Y., produces three government-standard chlorine products: liquid chlorine, calcium hypochlorite (70% available chlorine), and sodium hypochlorite. These products may be used for treatment of drinking water, swimming pools, or wastes.

Pest Control For Shade Trees

849 The Rotomist, a concentrate applicator of liquids and dry or wet dust, mounts on the platform or chassis of truck or trailer. It is powered by a 50-hp Chrysler industrial gasoline engine. The tank holds 50 gallons of concentrate, and the hopper has a dust capacity of 200 to 300 pounds. The power-operated rotation of the unit through 360° horizontal circle is directed from the operator's seat by hydraulic control. Send for literature to the John Bean Div., Food Machinery and Chemical Corp., Lansing 4, Mich.

Paper for Records

850 A new table on the selection of the appropriate paper for various recording and bookkeeping purposes has been published in a booklet entitled *How to Keep Your Records Legible and Lasting* by the Parsons Paper Co., Holyoke, Mass. The quality of paper used should be determined by two variables: the number of years the record is to be kept, and the number of times that the record will be handled.

Grass Mowers, Trimmers

851 The Locke Steel Chain Co., Lawn Mower Div., Bridgeport, Conn., will send you a 24-page booklet that describes this line of power lawn mowers and trimmers that practically eliminate the necessity for hand work. The range of styles includes units for handling large and small areas, and types for sulky attachment.

Versatile Trailers

852 The Champion Doo-All trailers fill the need for equipment that is maneuverable, adaptable for a wide range of tasks, and that has a low cost. On the chassis, which may be obtained with single or dual wheels, may be put a roll-dump body with a ¾-cubic-yards truck capacity; a turf equipment body 108 inches long, 80 inches wide, with a 28-inch-high bed; a utility body, dirt trays, side and end panels. Write the Champion Co., Springfield, Ohio.

145 Pages Describe Air Tools

853 The Tenth Edition of Catalog No. 564 from the Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y., contains 145 pages of descriptions of all types of air tools: impact wrenches, screwdrivers and nut runners, drills, abrasive tools, riveters, hammers, hoists, winches, balancers, pumps, concrete vibrators, air motors, and air-line accessories.

Radar Speed Meter Slows Automobiles

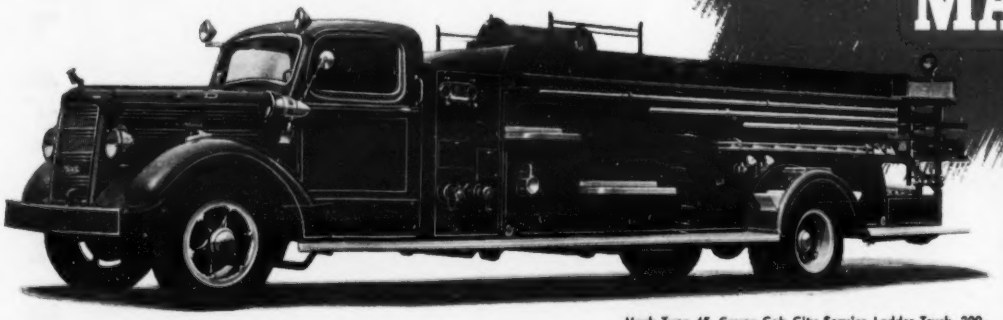
854 Connecticut police find that the new Electro-Matic speed meter acts like a police motorcycle parked along a highway. Where a strip of road is marked "State Police Radar Speed Control Zone," speeds are found to be 15 to 20 miles lower than elsewhere. The device, which is also being adopted by municipal police departments, is made by The Automatic Signal Division of Eastern Industries, Inc., East Norwalk, Conn.

Water Works Supplies And Specialties

855 Smith-Blair, Inc., South San Francisco, Calif. is distributing catalogs that describe its water works products: pipe repair clamps and lugs, sheet metal, rubber sheet packing, bolts, full circle clamp couplings, flexible steel couplings, service clamps, water-lock rings, and flexible tee and meter couplings. Included are instructions for making pipe repair clamps and directions for their use.

(Continued on Page 29)

High Protection at LOW COST* *with the versatile* MACK 45's

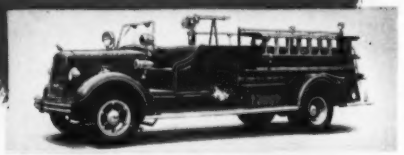


Mack Type 45, Coupe Cab City Service Ladder Truck, 200-gpm booster pump, recently delivered to Orono, Maine.

*Every community seeking modern fire protection with minimum investment should investigate the popular Mack 45's. Available in 500-gallon pumpers, hose and squad cars, and city service ladder trucks — in standard open seat, semi or coupe cab models — the compact 45's offer the same pace-setting performance, bulldog stamina and ease of operation that have made the name Mack mean the finest in fire apparatus.

In every detail, 45's reflect the superiority of Mack design and construction. Built expressly for fire-fighting service, their reliable, six-cylinder engines provide plenty of power for fast runs and long, full-capacity pumping jobs. The husky Mack chassis forms a rugged, shock-resistant unit that stands up under the toughest service. Cabs and bodies are designed and made in Mack's own shops to give the full protection to personnel demanded by today's traffic conditions.

If you're planning for apparatus in the lighter-weight range, be sure to have your Mack representative show you the 45's many advantages. No matter what your needs may be, you'll get full-fledged fire-fighters, through and through, when you *Modernize with Macks.*



Type 45, Open Seat Style Hose Car, 200-gpm booster pump, 1500-gpm turret nozzle, now serving Bay Shore, L. I.

Type 45, 500-gpm Semi Cab Pumper-Tanker, 400-gal. booster tank, recently put in service at Tallman, N. Y.

Type 45, Cab-over-engine Squad Car, Sedan Cab Design, one of 12 supplied to Chicago, Illinois.

Mack Fire Apparatus

MACK MANUFACTURING CORPORATION
Fire Apparatus Division
Long Island City 1, New York

Factory branches and dealers for parts and service in all principal cities. In Canada: Mack Trucks of Canada, Ltd.

7316

TRIPLE COMBINATION PUMPERS — 500 TO 2000 GALLONS . . . SQUAD AND HOSE CARS . . . CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

Stop--Check and Mail

Please Use Coupon on Page 25

Mechanically Stoked Incinerators

856 Nichols mechanically stoked refuse incinerators remove one of the most back-breaking labor jobs in the plant, while speeding up incineration and cutting costs. Write for Bulletin No. 217, The Nichols Engineering & Research Corp., 70 Pine St., New York 5, N. Y.

Parking Meters Can Be Profitable

857 When one meter is used for two parked cars, maintenance and collection costs are reduced and just half as many meters are required. Write for data about the Alfco Twin meter to International Meters, Inc., 100 East LaFrance St., Elmira, N. Y.

When Power Lines Fail, Depend on Combination Drives

858 Johnson combination drives will provide continuous water supply, guarantee the operation of emergency drainage pumps, transmit additional power to meet emergency requirements, and operate in sewage systems for continuous 24-hour service. Write for a catalog and full engineering details of the Johnson combination gear drives for supplementary power to the Johnson Gear & Mfg. Co., Berkeley 2, Calif.

Swimming Pool Paint

859 For a swimming-pool finish that stays fresh get acquainted with Hydroflex. Its base ingredient is rubber for durability and resistance to weather and water. It is said to require less cleaning and is available in sea green, sky blue, and deep blue. A folder describes Hydroflex in detail and may be secured from the Phe'an-Faust Paint Mfg. Co., 932 Loughborough Ave., St. Louis 11, Mo.

Economical Lawn Care With Power Mowers

860 The Ideal Power Lawn Mower Co., Div. of Mast-Foos Mfg. Co., Dept. 541, Springfield, Mass., manufactures among its many in the power lawn mower line, the Caretaker model. Equipped with a sulky, the model may have its cutting unit removed and a sweeper unit put on to make it ideal for quickly clearing grounds of leaves and trash. As a lawn-mowing unit, it has a 32-inch center cutter and a reverse mechanism for backing out of tight corners.

Hydraulically-Operated Shovel

861 The Tractomotive Corp., Deerfield, Ill., will send you data about the Tracto-Loader, an hydraulically-operated machine that comes in a 10-cubic-feet or a ½-cubic-yard models. The machine comes with interchangeable buckets and other accessories.

Short Wheelbase on Truck

862 The short wheelbase on the White truck makes it easy to maneuver in and out of traffic and parking spots. The driver has visibility to road level only 7 feet ahead. And the power lift cab provides complete accessibility to mechanical parts in less than 30 seconds at the turn of a key. Write the White Motor Co., Cleveland 1, Ohio.

Weeds Can Be Controlled

863 The Chipman Chemical Co., Inc., Bound Brook, N. J., has put out a 30-page booklet that describes not only the company's line of insecticides, fungicides, and weed killers, but also illustrates various types of equipment for different jobs, how to compute calibration of spray equipment, and most effective methods. Also included is an illustration and description of the most common weeds.

Chlorine Dispenser That Is Easy to Use

864 The Rato-Chlor chlorine dispenser is of the dry-vacuum type, using no water seals, bell jars, poppets, or similar devices—making the mechanism inexpensive and mechanically simple to operate with maximum accuracy. Write for literature to the Fischer & Porter Co., Hatboro, Pa.

Light Tractors For Mowing and Snow-plowing

865 Manufacturers are responding with even better and lighter tools for park gardening. Two new bulletins describe a complete garden line of 1-, 1½-, 3-, and 5-hp tractors with implements for mowing, snowplowing, spraying and tire-inflating. Ask for the Huski bulletins from Bolens Products Division, 215 South Park, Port Washington, Wis.

Dependable Supply for Air Tools

866 Gardner-Denver portable compressors provide a steady, uninterrupted air supply regardless of climate or altitude, since the complete water-jacketing of all cylinders weather-conditions them against over-heating and from cold, unlubricated starts in sub-zero weather. Write for information to the Gardner-Denver Co., Quincy, Ill.

Clear Root-Blocked Sewers, Septic Tanks, Cesspools

867 Rooto may be applied as a preventative—a few pounds applied periodically destroys and retards the growth of roots and organic matter—or to destroy roots that have already grown to a size large enough to clog the sewer, septic tank, or cesspool. Write for literature about this chemical compound to the Rooto Corp., 1333 Dime Bldg., Detroit 26, Mich.

Street Refuse Cans

868 The Smithson trash receptacle requires no painting; it smothers fires that start within it; made of aluminum, it is non-corrosive, and maintenance is low. Write for data to the Smithson Co., 219 So. Mednik Ave., Los Angeles 22, Calif.

Wire Fencing, Iron Gates, Steel Settees

869 The Stewart Iron Works Co., Inc., 1621 Stewart Block, Cincinnati 1, Ohio, manufactures a variety of products for the protection and beautification of municipal departments—chain-link wire fence in several heights, weights, and styles; plain or ornamental iron fence and entrance gates, and all-steel settees in 4-, 5-, and 6-foot lengths. Write for a catalog that fully describes these and other products.

Wood-Lined Pipe

870 Corrosion-proof wood-lined pipe is available in diameters 4 inches up and 2- to 20-foot lengths. Standard tees, curves, and other fittings may be had for assembling a pipeline for clear water or acids. Write for the 6-page folder from Michigan Pipe Co., 506 Phoenix Bldg., Bay City, Mich.

Cut Snowplowing Costs

871 The Norgahn moldboard glaze has a hard, smooth, low-friction surface which cuts through all types of snow more easily, requiring less truck power; sheds heavy snow and slush preventing piling up; and prevents rust. The glaze is sprayed or painted on the moldboard and dries instantly. Write for data to the Norgahn Co., Wausau, Wis.

Dual-Fuel Diesels Fit Sewage-Plant Needs

872 An 8-page bulletin, No. 4811, describes the Superior dual-fuel diesel engines for gas or fuel oil. These engines are available in three naturally aspirated models with power ratings of 175 hp to 960 hp, and two turbo-supercharged models with ratings of 505 hp to 1,440 hp. Write the Superior Engine Div., The National Supply Co., Springfield, Ohio. They are particularly useful in the sewage-treatment plant where sludge gas is used for power, and the diesel fuel can be used to meet peak loads.

Eliminate Water Hammer

873 Water hammer can be serious and can cause extensive damage. But it can also be eliminated with the Williams-Hager flanged silent check valve. Write for complete information to the Williams Gauge Co., 3013 Pennsylvania Ave., Pittsburgh 12, Pa.

Three Yards of Refuse Compress to 1 Yard

874 In the Sanivan garbage collector, 3 cubic yards of ordinary loose garbage are compressed to 1 cubic yard. The loading hopper is at waist level for greatest operator facility and the refuse body is entirely enclosed. Its compressor also mechanically transfers the refuse to the interior. Write for data, or a showing of the film, "At Your Disposal," to Sicard Industries, Inc., 753 West Main St., Watertown, N. Y.

How to Select A-C Generators

875 A new 16-page publication, *E-M Synchronizer No. 27*, describes the considerations that should go into the selection of a-c generators and paralleling a-c generators, detailing how to boost capacity to meet electric power demand and applying "packaged" generators. Write the Electric Machinery Mfg. Co., Minneapolis 13, Minn.

These Water Sprinklers Give Better Lawn Care

876 Circular No. 449 describes the Skinner system sprinklers, of use in municipal gardens and parks. An easily adjustable brake in the stem of the sprinkler permits great variation in the speed of rotation, and all parts of the Skinner Utility sprinkler are brass, bronze, and stainless steel—renewable and interchangeable. Write the Skinner Irrigation Co., Troy, Ohio.

Diesels

877 Bulletin 805 describes the Model 80 and 95 diesels manufactured by the Buckeye Machine Co., Lima, Ohio. The 4-cycle engines require comparatively little lubricating oil, cylinder and piston ring wear is much less in the four-cycle engine, and 18% of the heat value of the fuel oil used by the 4-cycle engine can be recovered from the exhaust for processing or heating purposes.

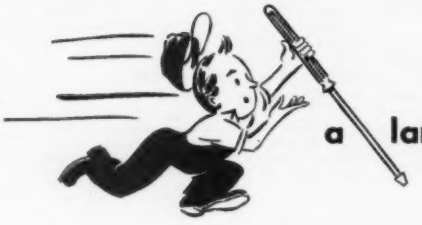
Stop Pipeline Rusting

878 Rust-Oleum chemical resistant coatings are special coatings designed for service under severe acid or alkali fumes, condensate, moisture vapors, greases, and oils where ordinary oil-type coatings are not satisfactory. Manufactured by the Rust-Oleum Corp., 2425 Oakton St., Evanston, Ill., these products are fortified with rubber to resist chemical conditions—the major cause of rust—and where general weathering or constant expansion and contraction are not primary causes of rust.

(Continued on Page 30)

Here's all you need to repair a KENNEDY SAFETOP after collision damage...

Only one man with a socket wrench



a large screwdriver

a light sledge hammer

one collision breakage repair kit (breaking ring, coupling, 2 pins, gasket)

and 30 minutes

More and more communities standardize on KENNEDY SAFETOP Fire Hydrants because SAFETOPS are proved dependable under the most rigorous conditions . . . and because SAFETOP maintenance and repair features are simplified for greater economy and efficiency.

Write for Bulletin 62 describing *all* the details of the KENNEDY SAFETOP'S design and construction. No obligation!

THE KENNEDY VALVE MFG. CO.
1030 EAST WATER ST.
ELMIRA, NEW YORK
VALVES • PIPE FITTINGS • FIRE HYDRANTS

OFFICE-WAREHOUSES IN NEW YORK, CHICAGO, SAN FRANCISCO • SALES REPRESENTATIVES IN PRINCIPAL CITIES

For You—Free

Please Use Coupon on Page 25

Need Any Sign or Signals?

879 Lyle Signs, Inc., Minneapolis, Minn., illustrates in its 44-page Bulletin No. B-48, its line of street name, city entrance, directional, railroad, traffic and school signs, warning signs and signals; sign brackets, and posts and accessories.

Floodlighting Equipment

880 For sports arenas, the Benjamin Electric Mfg. Co., 20 N. Wacker Drive, Chicago, Ill., makes a floodlight that combines a wide-angle porcelain enameled steel reflector with an oxidized Alzak Aluminum inner reflector to provide effective lighting of both horizontal and vertical surfaces.

Prevent Corrosion Of Steel Tanks

881 *The Inquiring Reporter Looks at Cathodic Protection* is a leaflet distributed by the Electro Rust-Roofing Corp. (N. J.), Belleville 9, N. J., that describes in question-and-answer form exactly what the cathodic method is—an electro-chemical means of preventing corrosion of steel exposed to water or soil, such as water tanks and sub-surface pipes.

What You Need To Make Your Lawns Grow

882 The Associated Seed Growers, Inc., P. O. Box 232, Milford, Conn., will send you literature detailing its full line of seed treatments, insecticides and fungicides, weed killers, herbicides and weed killers, fertilizers, plant food. The use of one or more of these preparations, depending upon the particular lawn problem you face, will assure a healthier and more uniform turf.

Versatile Line of Excavators

883 The Hanson machine may be used as a clam-shell, crane, shovel, trench-hoe, or dragline; a long or short steering radius may be obtained, and air-controlled steering operates through a differential mounted between two individual lower propel shafts to permit crawling in and out of tight spots, up and down steep inclines. The machine propels with the cab in any position, and the Hanson performs any kind of ⅜- or ½-cubic-yard work. Write for a catalog to the Hanson Clutch and Machinery Co., Tiffin, Ohio.

Pneumatic Tools

884 When it comes to speed for such work as splitting large rocks and boulders, breaking stone and pavement, driving 1- to 2-inch standard pipe—pneumatic tools deliver. Write for a brochure describing the pneumatic tools made by the Atlantic Steel Corp., 1775 Broadway, New York 19, N. Y.

Safety and Protection With Chain Link Fence

885 The Continental Steel Corp., Kokomo, Ind., will send you a brochure illustrating its line of Konik steel chain link fence for safeguarding such structures as playgrounds, tennis courts, pools, athletic fields, parks, and water, sewage and power plants.

Photoelectric Colorimeter Gives Better Water Tests

886 Since the final results in analysis depend upon the accuracy with which the color is measured, the photoelectric instrument offers not only the advantage of absolute accuracy, but also eliminates error resulting from eye fatigue. Two or more technicians will get the same results—individual judgment does not enter into computation—and a whole series of determinations may be completed in a few minutes. Write for literature about the Klett-Summerson photoelectric colorimeter to the Klett Mfg. Co., 179 E 87th St., New York 28, N. Y.

(Continued on Page 32)

Sealed Gasket! 3/4" BOLTS!

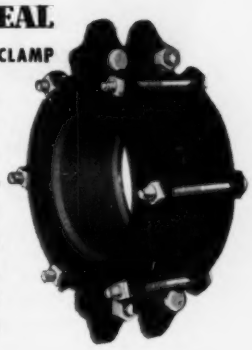
SKINNER-SEAL Bell Joint Clamp is the only clamp with these two important features.

Gasket is completely SEALED and protected; at the bell face by a Monel Metal Seal Band; at the spigot by hard, vulcanized gasket tip, acting as a plug. Sturdy malleable iron Compression and Anchor Rings—shaped and pressure-tested before shipping. 3/4" high-tensile steel bolts, cadmium plated.

This is going to be a tremendous clamping summer—order early.

SKINNER-SEAL
SPLIT COUPLING CLAMP

For Repairing Broken Cast Iron Mains



IF YOU DON'T HAVE OUR BIG CATALOG NO. 41, WRITE OR WIRE TODAY!

M. B. SKINNER CO., SOUTH BEND 21, IND.

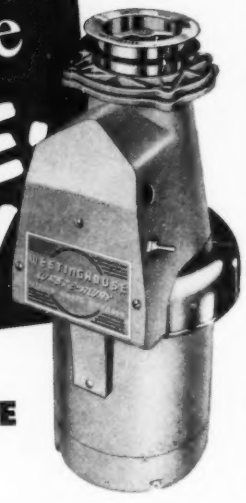
SKINNER-SEAL BELL JOINT CLAMP

MEMO TO

Mayors, Councilmen and Sanitary Engineers

More and more progressive cities and towns are planning municipally-financed installation of home garbage disposers. Others, in steadily increasing numbers, are recommending and approving installation by homeowners. They realize that garbageless communities are healthier communities—better communities in which to live. And in the field of garbage disposer development, Westinghouse is setting the pace with the new Model G-4.

Westinghouse
WASTE-AWAY



ELECTRIC GARBAGE DISPOSER

Double-edged shredders, powerful reversing motor and rust-resistant flywheel assure years longer service and more positive shredding action of waste to most exacting sieve tests.

You can make your community a pace setter. Recommend the installation of the Westinghouse Waste-Away. Of course, it's electric. Specifications upon request.

WESTINGHOUSE ELECTRIC CORPORATION
Plants in 25 Cities . . . Offices Everywhere
Appliance Division • Mansfield, Ohio

YOU CAN BE SURE..IF IT'S Westinghouse

For You—Free

Please Use Coupon on Page 25

Election Equipment

887 Now is the time to get information about election equipment consisting of up-to-date voting booths, non-stuffable ballot boxes, and collapsible steel election tables. The equipment is used throughout the United States, and as far away as Hawaii. Write for a folder from the Douglas Mfg. Co., Crete, Nebr.

Motor Scooter Hauls and Moves

888 The Cushman motor scooter, which gets up to 65 miles per gallon, is useful not only in providing fast transportation for maintenance, revenue-collecting, or police-department men, but also for hundreds of small hauling jobs—mowers, greenskeeping equipment, repair equipment. Write for literature to the Cushman Motor Works, Inc., Dept. AC39, Lincoln, Nebr.

Pick Up Leaves by Vacuum

889 The Egan leaf collector can be temporarily installed on any truck, and easily removed. It sucks up wet or dry fallen leaves, then shreds and compresses them into a small space. Write the Deephouse Equipment Co., Inc., Leaf Collector Div., 162 Farmington Ave., Berlin, Conn.

Install Pipe Underground Without Excavation

890 The Greenlee pipe pusher, operated by one person, pushes pipe under a railway, street, or lawn at the rate of two feet a minute. A short trench accommodates the pusher. Write the Greenlee Tool Co., 2032 Columbia Ave., Rockford, Ill.

Pumps

891 An extensive line of pumps for various municipal services is available from the Weinman Pump Mfg. Co., Columbus, Ohio. Write for catalogs on the Type L centrifugal pumps available in split-case, multistage, belt- or motor-drive, and non-clogging styles; sump pumps; Unipump condensate return units.

Traction-Driven Material Spreader

892 The Hi-Way Model R material spreader, traction-driven, spreads chips, rock, and gravel smoothly with no thick or thin spots to waste time and material. Ideal for seal coats on oil, it operates forward or reverse by shifting a lever. An adjustable feed gate controls the thickness of the spread and the width is adjustable from one foot to the full width of the machine, available in widths from 8 to 13 feet. Write to the Highway Equipment Co., Inc., 629 D Avenue NW., Cedar Rapids, Iowa.

Grinding Up Waste

893 For disposal of garbage, rubbish, brush and paper in quantity, Mitts and Merrill, Saginaw, Mich., makes the necessary three types of grinders and shredders. The garbage hog has an optional screen for preventing discharge of material until ground to size. A new brush hog grinds park cuttings to compost size at a rate of over 5,000 pounds per hour. The paper shredder reduces office correspondence or newspapers to strands $\frac{1}{8}$" to $\frac{5}{8}$" at 200 to 1,800 pounds per hour. Write for literature.

Lighting-Fixture Hangers Descend for Maintenance

894 The Thompson hanger provides for low-cost, safe maintenance, since the overhead lights can be lowered to floor level for cleaning and lamp replacement. Unlatching and reconnecting require only a regulated pull and release on the light-weight chain. Write for information to the Thompson Electric Co., 1101-20 Power Ave., Cleveland 14, Ohio.

(Continued on Page 34)

JOE: Not the way things are now, Tom. The city ordinance won't let us.

TOM: How come?

JOE: Under the law, the city's hose specifications can't include any improvement that's confined to one manufacturer.

TOM: You mean—if somebody develops a type of fire hose better than the rest, this city can't buy it?

JOE: That's it exactly. They figure it would be unfair because other manufacturers, with ordinary hose, couldn't compete in the bidding.

TOM: So the city ends up buying the cheapest fire hose on the market.

JOE: Right—the cheapest hose that meets those minimum specifications. It's not cheap in the long run, though, because at a price just a little higher, the city could buy *good* hose that would last twice as long. We'd be saving money.

TOM: Yes, and saving lives, too. Remember what happened to Pete Cleary? He'd be right here talking with us now if that hose hadn't blown out when it did. It's too late to save Pete, but . . .

SAVE LIVES AND SAVE MONEY
IN YOUR FIRE DEPARTMENT.

Get ALL the FACTS on fire hose.
Mail this coupon TODAY!

TRADE
Bi-Lateral
MARK

Bi-Lateral Fire Hose Company
20 N. Wacker Drive, Chicago 6, Ill.

Without charge or obligation, please send me fire hose facts that will help my city save lives and money.

NAME_____

DEPARTMENT_____

STREET ADDRESS_____

CITY_____ ZONE_____ STATE_____

CYCLONE will serve your Tennis Players better

CYCLONE Tennis Court Enclosures and Backstops are standard equipment at most of America's finest tennis clubs . . . both municipal and privately-owned. Groundskeepers and players alike prefer Cyclone's *engineered protection.*

Cyclone Enclosures and Backstops are *high* enough to confine play . . . *strong* enough to take a beating from ball or body contact. They'll keep their trim appearance season-in and season-out; they give complete "entrance and exit control."

U-S-S Cyclone Fence . . . 14 types in all . . . gives completely *engineered protection* to all kinds of municipal property—parks, playgrounds, pools, power plants, reservoirs and the like. Galvanized by the hot-dip method *after weaving* and erected by trained Cyclone crews, Cyclone Fence offers you proved, trouble-free service.

It will pay you to write "Cyclone Fence" into the specifications of your next municipal project. Our sales engineers—experienced fence experts—will be glad to study your individual problems and make recommendations. Contact your nearest branch.

CYCLONE FENCE DIVISION
(American Steel & Wire Company)
WAUKEGAN, ILLINOIS · BRANCHES IN PRINCIPAL CITIES
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

NO JOB IS TOO LARGE—NO JOB IS TOO SMALL FOR CYCLONE

U·S·S CYCLONE FENCE

CLIP THIS COUPON SEND IT TO—

Cyclone Fence, Waukegan, Ill., Dept. B-69
We'll send you our free, 32-page book on fence. It's full of facts, specifications, illustrations. Shows 14 types of fence. Before you choose any fence for your property, get the facts about Cyclone.

Name.....
Address.....
City..... State.....
Interested in fencing: ☐ Industrial; ☐ School; ☐ Playground; ☐ Residence. Approximately ..... feet.

USS
UNITED STATES STEEL

For You—Free

Please Use Coupon on Page 25

Easily-Jointed Water Pipe

895 The only field equipment necessary to make a Universal Cast Iron pipe bolted joint is a ratchet wrench—no calking, pouring of lead, gaskets, or bell holes. And there is nothing to deteriorate or work loose; no leakage, no maintenance cost. Write for a catalog to the Central Foundry Co., Dept. C., 386 Fourth Ave., New York 16, N. Y.

Straight Traffic Lines At a Fast Pace

896 The Mark-Rite line marker, made by the Universal Mfg. & Sales Co., 8714 S. Santa Fe Ave., South Gate, Calif., operates by gravity feed. Of aluminum construction, the Mark-Rite has a brush of a special paint-spread design available in interchangeable sizes of 2, 3, or 4 inches in width.

Mechanically Stoked, Incinerators Cut Labor Costs

897 One of the difficult jobs in an incinerator plant is the stoking. Morse Boulger's incinerators, mechanically stoked, eliminate this while stepping up production and increasing plant capacityy. Write for data about the Morbostoker, which has in the center of the main ignition chamber and projecting above the cast-iron hearth the automatic-stoking unit for the mechanical agitation, stoking, and moving of the refuse. Ask for Bulletin 111A, the Morse Boulger Destructor Co., New York 17, N. Y.

Load Truck Without Turning Tractor

898 The Marmach loader, made by the Marion Machine Co., Inc., Marion, N. C., is designed with a steam-shovel crowding action: when digging, the hydraulic bucket ram exerts a crowding impulse against the loading arm with a powerful leverage in a minimum of cylinder travel, reducing strain on the tractor chassis. And the loader empties the bucket without turning the tractor. The filled bucket rises, passes overhead the length of the tractor, and dumps, clearing the rear of the machine.

Automotive Diesels

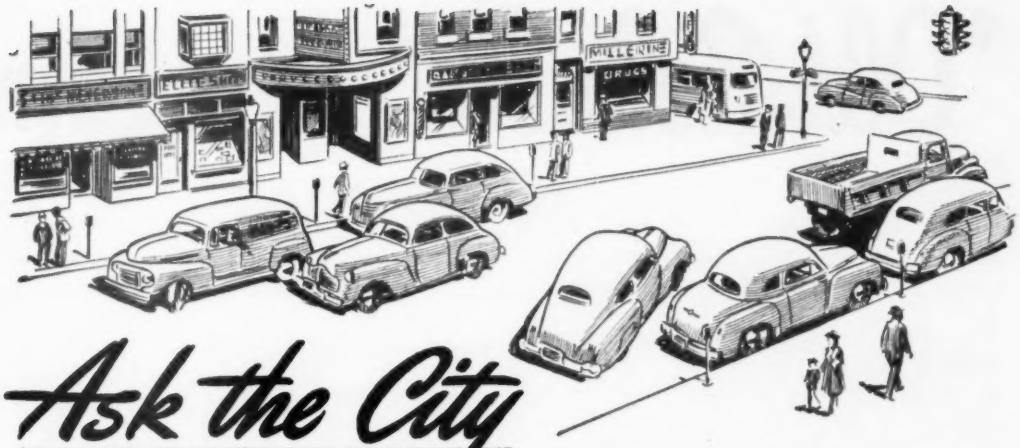
899 The Mack Mfg. Corp., Empire State Bldg., New York, N. Y., is offering a 67-page booklet that explains the why and wherefor of the automotive diesel. This non-technical treatise explains the difference between the automotive diesel engine and the larger and older types for stationary, marine, and railroad use, and the economy and efficiency of the automotive diesel.

Special Valves For Water Treatment

900 Data about the Clayton float, altitude, pump-control, check, and pressure-reducing valves and special valves for municipal water treatment may be obtained from the Cla-Val Co., 1600 Orange St., Alhambra, Calif.

Asphalt Plants

901 Bulletin R-47 from Hetherington & Berner, Inc., 701-745 Kentucky Ave., Indianapolis 7, Ind., describes the Model R asphalt plants for producing in small quantities the same quality of hot or cold mixes as large portable- and stationary-type plants. The R-400 has a batch capacity of 350 pounds; hot material bin capacity, 3,100 pounds; cold material bin capacity, 5,000 pounds; dust storage bin capacity, 1,600 pounds; asphalt kettle capacity, 300 gallons. The R-600 has 250 pounds more of batch capacity; a 9,000-pound hot material bin capacity; the same cold material and dust storage bin capacities and the asphalt kettle capacity is increased by 100 pounds.



Ask the City

that has had meters in service five years or more

Here's the one sure way to settle the question of how well a meter performs over a long period of time, and whether or not it will earn as much five years after installation as it did the first year.

And by asking the city that has had meters in service five years or more, you can settle other questions, too. For example: The all-important matter of maintenance over a period of years. The ability of the meter to absorb punishment year after year without breaking down. How it behaves under varying climatic conditions.

You will get a good idea of a meter's worth when you check reports from cities where they have been in operation for five years or more.

In this respect, MI-CO Meters have an enviable record of dependable operation and low cost maintenance. Some MI-CO installations are ten years old, with earning capacity undiminished, and where upkeep expenses continue to be unusually low. We'll be glad to send you these reports, and to give you a list of MI-CO installations of five years and over so you, too, can check with them.

Why take chances? Play safe by installing dependable MI-CO Meters—the meter with a background of ten years of reliable service.

MI-CO METERS, 231 Court St., Covington, Ky.

Division of The Michaels Art Bronze Co., Inc.

"Old Reliable" is again

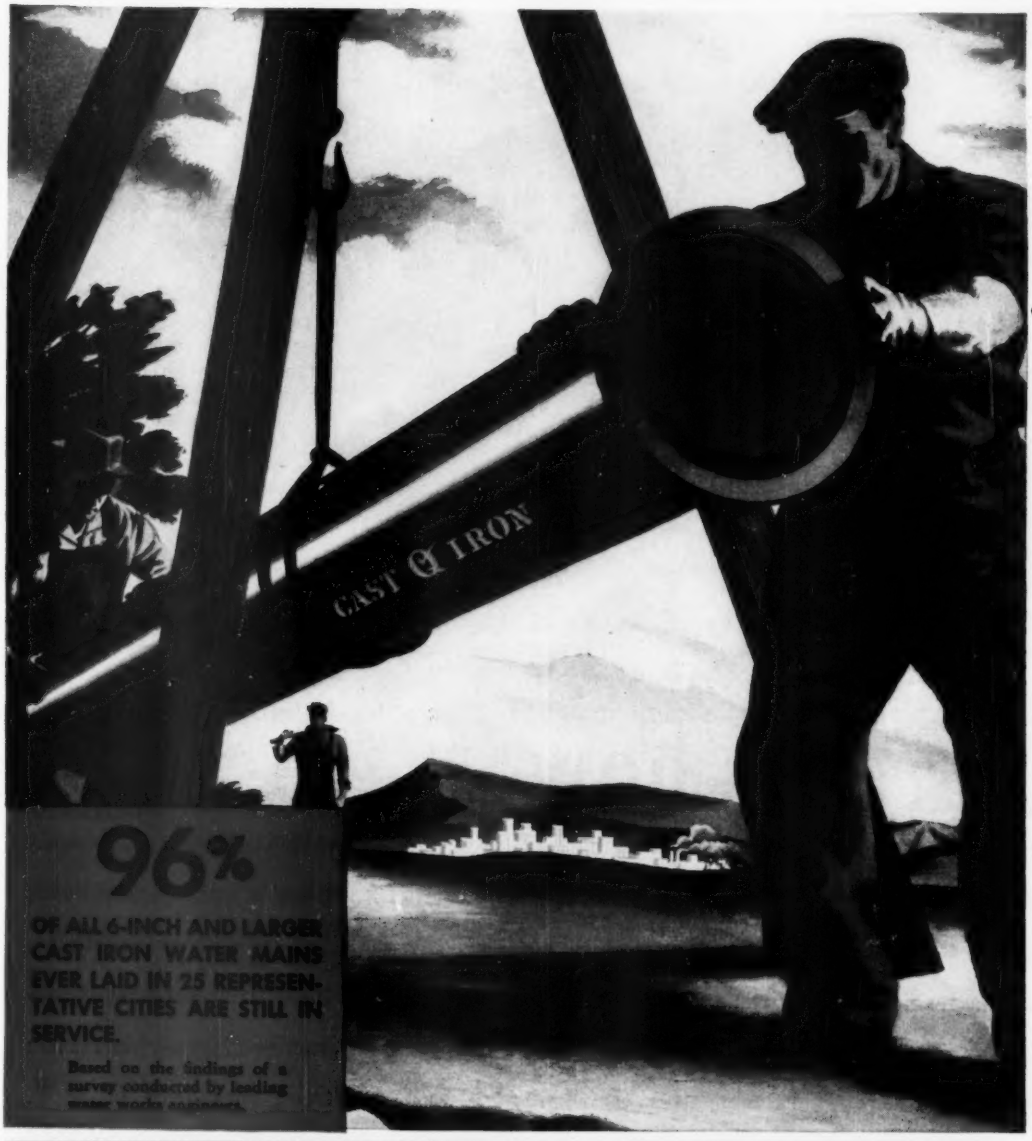
When you can now get cast iron pipe—the "old reliable"—tried and true for generations—and can get it promptly—why buy anything else?

The qualities that enable cast iron pipe to serve for centuries are also the qualities that mean day-by-day economy in the operation of a water distribution system. *Qualities that result in low annual maintenance cost.* (Reports from 195 water works superintendents show that the maintenance cost of cast iron distribution mains is far below that of other pipe materials.) *Qualities that result in lowest cost per service year.* (96% of all 6-inch and larger cast iron water mains ever laid in 25 representative cities are still in service.)

With cast iron pipe, you save money on maintenance—you save money by fewer street-openings and repairs—you save money by avoided replacements which would be necessary with shorter-lived pipe. Cast Iron Pipe Research Association, Thomas F. Wolfe, Engineer, 122 South Michigan Ave., Chicago 3, Ill.

CAST IRON PIPE

promptly obtainable!


CAST IRON
96%
OF ALL 6-INCH AND LARGER CAST IRON WATER MAINS EVER LAID IN 25 REPRESENTATIVE CITIES ARE STILL IN SERVICE.
Based on the findings of a survey conducted by leading water works engineers.

SERVES FOR CENTURIES

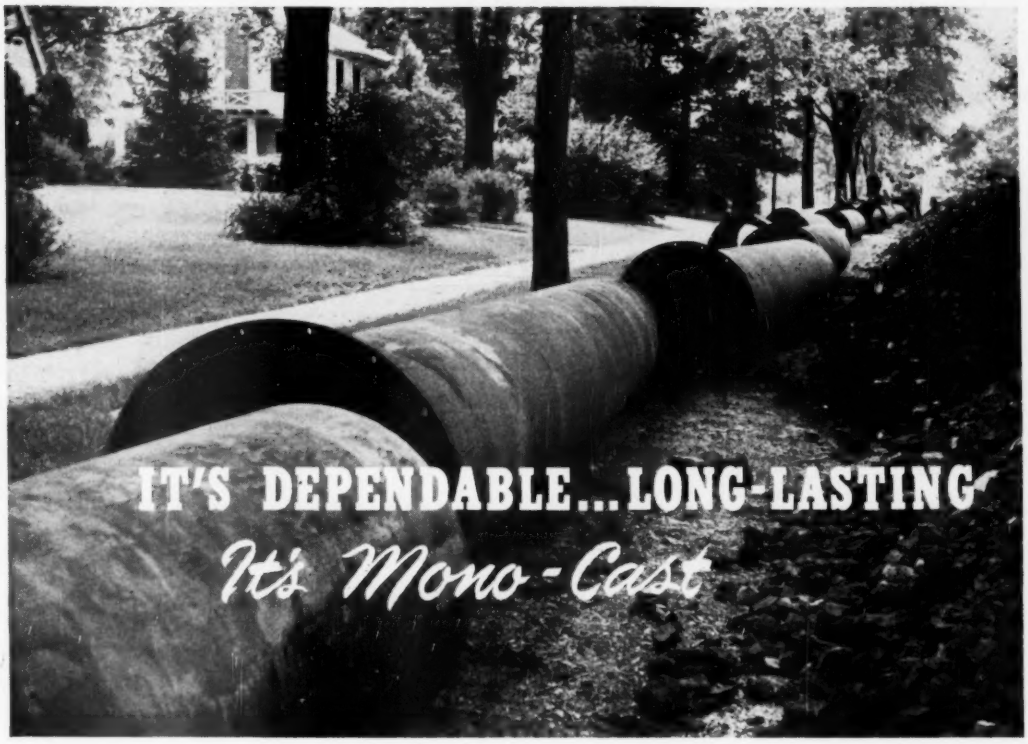
here's how . . .

dozens of sanitation jobs can be completed swiftly and surely. Quick-acting HTH provides 70% available chlorine . . . in handy form for a wide range of uses all the way from disinfecting billions of gallons of polluted flood water to simple, routine sanitation chores. • For swift, on-the-spot chlorination — in emergencies or day-to-day duties — always reach for HTH. Keep it on hand for dozens of sanitizing purposes. Write for free copy of new 48-page manual — "Hypo-Chlorination of Water". Mathieson Chemical Corporation, 60 East 42nd Street, New York 17, N. Y.

Sanitation HTH . . . PH-Plus (Fused Alkali) . . . Liquid Chlorine . . . Chlorine Dioxide . . . Caustic Soda . . . Soda Ash . . . Bicarbonate of Soda . . . Ammonia, Anhydrous & Aqua . . . Dry Ice . . . Carbonic Gas . . . Sodium Chlorite Products . . . Sodium Methylate

Mathieson
SANITATION HTH

Sanitation HTH is available in cases of nine handy 5-lb. cans and in 100-lb. drums.



Long service with minimum maintenance, coupled with simplicity of installation, make Mono-Cast Pipe a favorite for systems conveying water, gas, oil, sewage and other liquids under high, medium, or low pressures. Among the joints available are Bell and Spigot, Doublex Simplex, Roll-On-Rubber Ring, Screw-Gland and Molox Ball and Socket. These joints and a full line of standard accessory fittings make it easy to install under varying service and laying conditions.

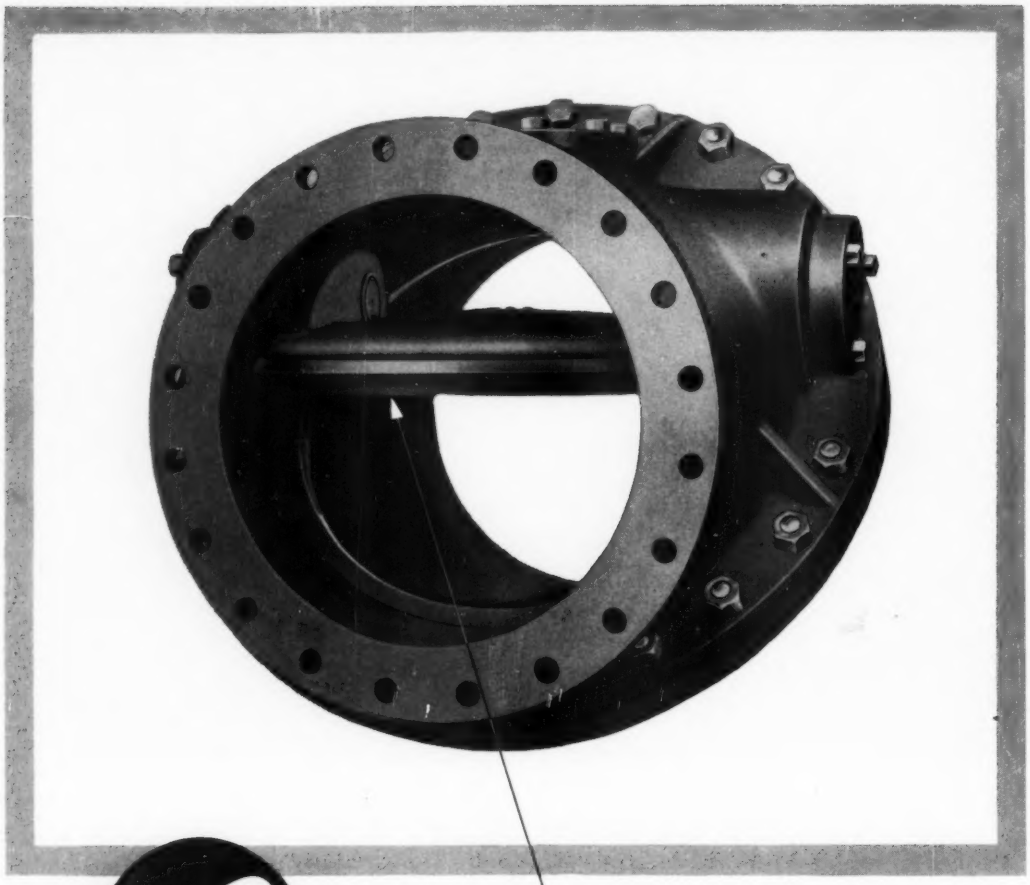
Mono-Cast Pipe is manufactured under close control to meet nationally recognized standard specifications. Cast centrifugally in sand-lined molds, it is supplied with or without tar coating, cement or Enameline lining in sizes 3″ through 48″.

Refer your next piping problem to Acipco and utilize both our extensive manufacturing facilities and our nearly half a century of experience in furnishing pipe and fittings.

AMERICAN CAST IRON PIPE COMPANY

Birmingham 2, Alabama

Dallas Houston El Paso Pittsburgh Kansas City New York City
Chicago Minneapolis Cleveland Los Angeles San Francisco Seattle



pipe line surging with the cushioned closing of

CHAPMAN CHECK TILTING DISC VALVES

Cushioned by the effect of the stream on the short flap of the balanced disc, Chapman Tilting Disc Check Valves close smoothly and quietly. Slamming and dangerous pipe line stresses are eliminated . . . maintenance costs reduced. Head losses are cut 65% to 80% as compared with conventional type check valves.

Chapman Tilting Disc Check Valves are obtainable in either iron or steel. For complete information send for catalog No. 30.

The Chapman Valve Mfg. Co., Indian Orchard, Mass.

A RUGGED LINE FOR RUGGED COUNTRY

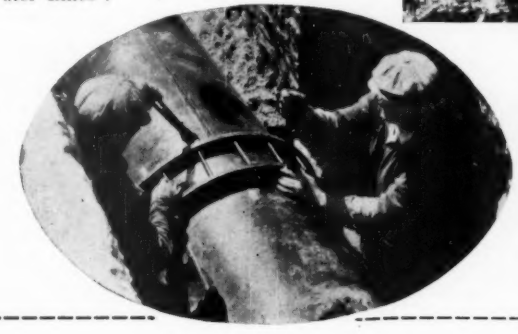
● In mountainous country like this, a water line has to be *tough*. And this Dresser-Coupled steel line can really take it. Strong, shatterproof lengths of steel pipe are connected with factory-made, factory-tested Dresser Couplings, which act as a cushion at every joint.

The flexibility of Dresser Couplings means added life for the line, because Dressers absorb the stresses of underground service and the expansion and contraction due to severe climatic changes. It also permits you to lay curves with straight pipe lengths.

Installing a Dresser-Coupled steel line, even in hilly terrain, is simplicity itself. There's no bulky joining equipment to drag around, no field fabrication. You simply place the couplings over plain-end steel pipe and tighten the bolts. Any workman who can use a wrench can make a permanently tight joint every time.

And with Dressers, you get the full advantage of modern, glass-smooth pipe linings. Dresser Couplings fit outside the pipe. There is no heat to damage the lining—no need for workmen to go inside the pipe.

For long, trouble-free service, for permanent tightness, specify a Dresser-Coupled steel line. Write for Dresser's new "Report of Coupled Steel Water Lines".



SIMPLE · FAST · FLEXIBLE · PERMANENT

Even in cramped quarters encountered in city work, Dresser Style 38 Couplings make permanently tight, flexible joints every time.

●

PARTIAL LIST OF CITIES USING DRESSER-COUPLED STEEL LINES

Boston, Mass.	Kansas City, Mo.	Jersey City, N. J.
Newark, N. J.	Portland, Ore.	Syracuse, N. Y.
Springfield, Mass.	Oakland, Calif.	Milwaukee, Wisc.
Cleveland, Ohio	Savannah, Ga.	Philadelphia, Pa.

DRESSER "FLEXIBLE-TIGHT" COUPLINGS

Dresser Manufacturing Division, 59 Fisher Ave., Bradford, Pa. (One of the Dresser Industries)—In Texas: 1121 Rothwell St., Houston
In Canada: Dresser Mfg. Co., Ltd., 629 Adelaide St., W., Toronto, Ont.—Sales Offices: New York, Chicago, Houston, San Francisco.

The Sensational New

FEATHERWEIGHT

MODEL 87

GOLDAK

PIPE LOCATOR

Goldak Invites Comparison

- Shows - not approximate but *EXACT* location of buried pipes, mains, services, gates, tees, ells, stubs, etc.
- Completely new electronic circuit provides an incomparably strong positive location signal.
- No trick tubes or other hard-to-get parts. Uses readily available standard miniature radio tubes and flashlight batteries.
- Compact in design, ruggedly built for lifetime use.
- Operating simplicity. A one-man instrument.
- Featherweight - only 11 lbs. complete.
- Guaranteed superior performance - resulting from 15 years of electronic research and construction of locating instruments.

GOLDAK *OUTSELLS* - BECAUSE IT *EXCELS*

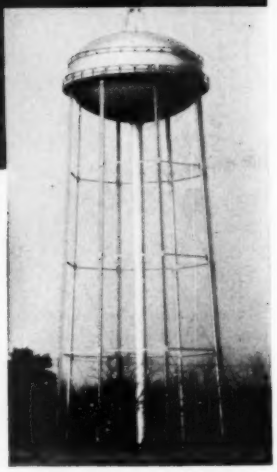
WRITE FOR DETAILS

THE GOLDAK COMPANY

1544 West Glenoaks Blvd., Glendale 1 California

For *Economical* Maintenance

COLE ELEVATED TANKS



● Design plays an important part in tank maintenance. Experienced engineers design Cole tanks for easy access and minimum maintenance costs, as well as for permanence, safety, and dependability.

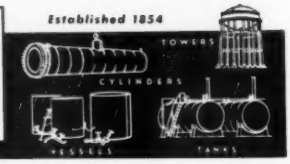
Send us your inquiries for tanks 5,000 to 2,000,000 gallons—stating capacity, height to bottom, and location. Write for latest Cole catalog—"Tank Talk."

R.D. COLE

MANUFACTURING CO.

NEWNAN, GA.

Established 1854



Z-Z-Z-Z-Z-Z-Z-Z-Z-Z

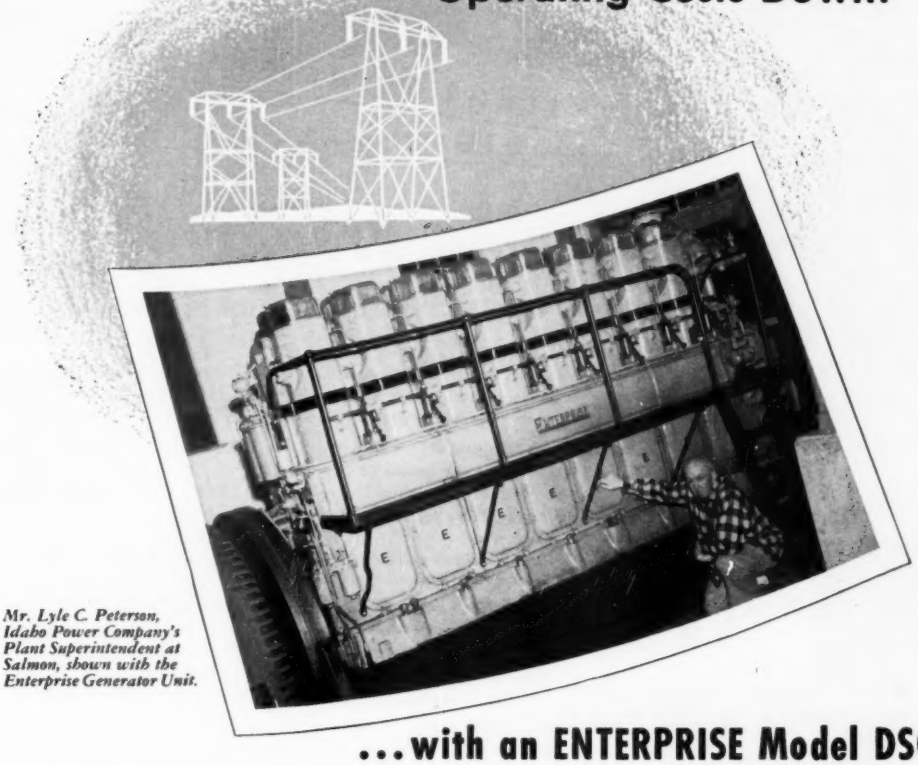
is an accurate description of how guests react to Hotel Statler's 800-spring beds. And when they taste Statler's wonderful food, and sample Statler's efficient service, they're guests for life!

STATLER HOTELS

STATLER HOTELS: ***NEW YORK*** (FORMERLY HOTEL PENNSYLVANIA)
BOSTON • ***BUFFALO*** • ***CLEVELAND***
DETROIT • ***ST. LOUIS*** • ***WASHINGTON***
STATLER OPERATED ***HOTEL WILLIAM PENN*** • PITTSBURGH

At Salmon, Idaho...

Power Capacity Up *25%* Operating Costs Down!



Mr. Lyle C. Peterson, Idaho Power Company's Plant Superintendent at Salmon, shown with the Enterprise Generator Unit.

...with an ENTERPRISE Model DSG-38

Power plants commonly find that when Enterprise Diesels go in, costs go down. That has been the experience at the Salmon plant of Idaho Power Company.

This plant, with 1255 HP in two hydro-electric units, has added 1070 HP in four diesel units at various times to meet rising power demands and offset erratic hydro power output caused seasonally by summer irrigation demands and winter ice jams.

Need for still more power led to the addition of the Enterprise DSG-38 in 1947. According to Mr. Peterson, the Salmon plant superintendent, this Enterprise unit *increased power capacity 25%*, and *reduced* the cost of operation by permitting use of 32 API gravity fuel instead of the 28 gravity fuel formerly required. The Enterprise has carried a large part of the plant load for long periods without difficulty. At other times it has operated efficiently with very small loads.

This same dependability, flexibility and economy is available in the complete line of Enterprise 4 cycle Diesel engines and generator sets. Write for full details.

ENTERPRISE *Diesels*

Choice of The Power Experts

ENTERPRISE ENGINE & FOUNDRY CO.
18TH & FLORIDA STS., SAN FRANCISCO 10, CALIF. OFFICES IN PRINCIPAL CITIES

LIGHT IN WEIGHT

BIG IN VALUE

B37 Paving Breaker

joins famous Gardner-Denver family

Weighs only 38 pounds! Yet the Gardner-Denver B37 Paving Breaker is packed with many of the same big values that have proved so popular in the medium B67 and heavy B87 machines.

The tough-slugging B37 makes fast work of light demolition jobs. It's light and safe in the hands of the operator who must work from scaffolding, or wherever footing is treacherous. It's built to endure years of hard work. Here are some of the reasons why:

Renewable chuck liner — easily replaced at low cost — a new liner protects both tool and breaker against a loose-fitting shank.

Double-life hammer — block type piston hammer is reversible for double life — an exclusive feature. Use of tappet minimizes wear on hammer striking face. Tappet operates in renewable bushing.

Extra safety — exclusive throttle valve lock works like the safety on a gun — prevents accidents before they happen.

Easy riding — fast cutting action without violent recoil means less operator fatigue. Holding handles stay cool.

Low air consumption — with efficient low-lift plate valve. Long piston stroke gives hard-hitting blow. Exhaust will not "freeze."

Quick acting latch type steel retainer — holds tool securely.

Positive lubrication — integral oil reservoir meters oil to every working part, including tool shank. Lubricated shank reduces chuck wear and breakage of gads.

For complete information, write Gardner-Denver Company, Quincy, Illinois.

Specifications for GARDNER-DENVER B37 PAVING BREAKER

Weight	38 lbs.
Piston Diameter	1⅞"
Length	22"
Size of Tool Shank	1" Hex. x 4¼"
Air Hose Recommended	¾"
Weight, Boxed for Shipment	61 lbs.
Boxed Dimensions	8" x 16" x 26" 1.9 cu. ft.

GARDNER-DENVER

SINCE 1859

The Heiloader hydraulically-operated truck tailgate handles a capacity load of 2000 lbs. Use it to save time and money.

Heil Bodies and Hoists assure less downtime..because

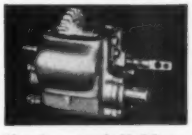
(1) HEIL Bodies use both cross members and long members of the subframe for support, giving you extra strength and longer life

(2) HEIL Hydraulic Hoists are so reliable that you never have to replace a piston due to wear

More days on the job, lower maintenance and repair expense mean *lower hauling costs* with Heil Bodies and Hoists. These money-saving dump units are built to stand up under heavy punishment — to stay on the job and get results. For full information on Heil Bodies and Hoists send in the coupon below, today. BH-141A

Heil's standard contractors' body has V-section side braces that prevent tailgate spreading.

Heil's heavy-duty rock body for off-the-highway operations. 70° dumping angle gives fast, clean discharge.



There's a sturdy Heil Power Take-off for every make of truck transmission.

Only two wearing parts in a Heil oil-gear pump —and they are reversible and easily replaced.

Heil's platform conversion hoists convert any fixed-bed truck into a time-saving dump unit.

THE HEIL CO.

Factories: Milwaukee — Hillside, N. J.
District Offices: Hillside, Washington, D. C., Atlanta, Milwaukee, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Los Angeles, Seattle

THE HEIL CO., Dept. 4369, 3043 W. Montana St., Milwaukee 1, Wis.

Please send me bulletins describing the dependable Bodies and Hoists shown in this advertisement.

Name.....Title.....

Company.....

Address.....

City.....( ) State.....

a "10-TON ROLLER" that weighs only 230 lbs. . . .

Super-tamps, finishes, cures 60 to 80 sq. ft. per minute of bituminous or dry concrete pavement patching, mastic or cement composition floor base, or earth. Works flush to walls, curbs, tracks, manholes.

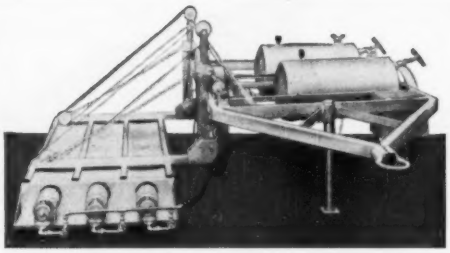
Striking 1750 to 2000 blows per minute, each of more than 700 ft. lbs. impact, the Wayer Impactor produces density greater than a 10-ton roller and in places a roller can't reach. Heated plate cures surface, ready for immediate traffic. Transports on material truck. One man operates. Big cost savings.

Send for Bulletin 25-8 and name of distributor.

Can work flush to any edge

WAYER IMPACTOR

Wayer Impactor Sales Co., 12 N. Third St., Columbus 15, Ohio



Why destroy Base of Pavement to apply a New Top

White Surface Heaters

These machines offer the quickest, cleanest, most economical method for repairing or resurfacing any bituminous pavement.

They melt 1" of old surface in 5 minutes. It can be scraped away and new top applied without damaging base course. This has been successful practice for years.

2 sizes: B-4, above, has 3x6' pan; Model B-1 has 6x6' pan, 6 burners. Square cutting edges. Dual fuel tanks. Hoisting winch. Can be towed on steel wheels, and moved by hand.

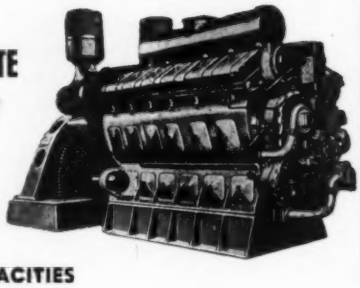
Write for Catalog

Elkhart **White Mfg. Co.** Indiana

DIESEL GENERATOR SETS

FOR

IMMEDIATE DELIVERY



UNIT CAPACITIES
10 TO 1420 KVA

A.C. 50 AND 60 CYCLES
ANY VOLTAGE

Write or wire today for bulletins and complete information regarding these fine fully guaranteed DIESEL ENGINE GENERATING UNITS.

AG SCHOONMAKER CO INC.
Power Division
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In the Beautiful
MOJAVE DESERT
CALIFORNIA
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● The Dude Ranch Capital of America
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For Reservations or literature, write:
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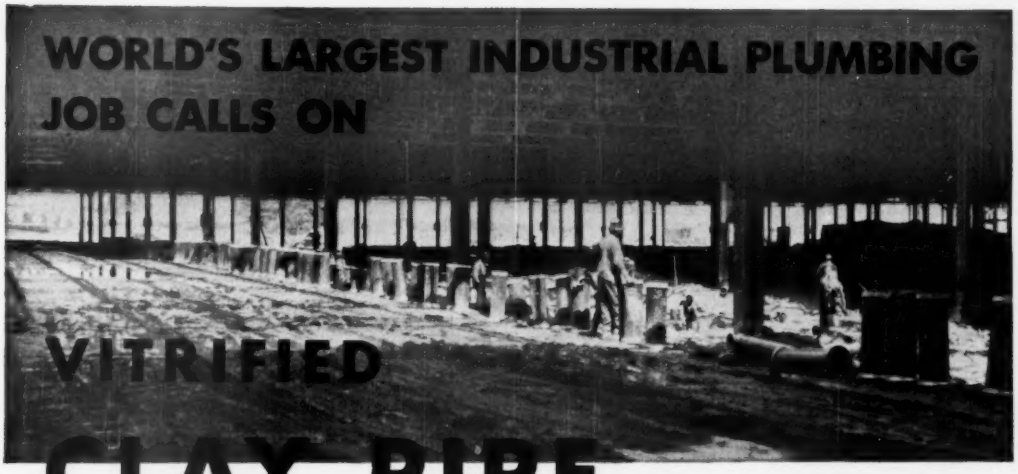
WORLD'S LARGEST INDUSTRIAL PLUMBING JOB CALLS ON



CLAY PIPE

Vitrification—Key to Centuries of Service

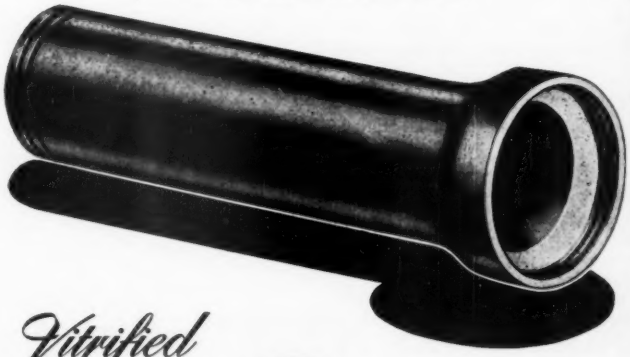
There are two simple reasons why Vitrified Clay Pipe lasts forever!

1. Clay is the *only* basic pipe material which is acid-proof and chemical-resistant by nature.
2. *Vitrification* at fusing temperatures bonds this imperishable clay into strong, homogeneous pipe lengths that *can't* disintegrate!

Result? Clay Pipe never wears out — is completely unaffected by acids, alkalies and chemicals! It's the world's only absolutely safe pipe for sewerage installations under any and all service conditions.

If you need specific information on a Clay Pipe problem, write the details to the office nearest you.

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1105 Huntington Bank Bldg., Columbus 15, Ohio
703 Ninth and Hill Bldg., Los Angeles 15, Calif.
522 First National Bank Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.

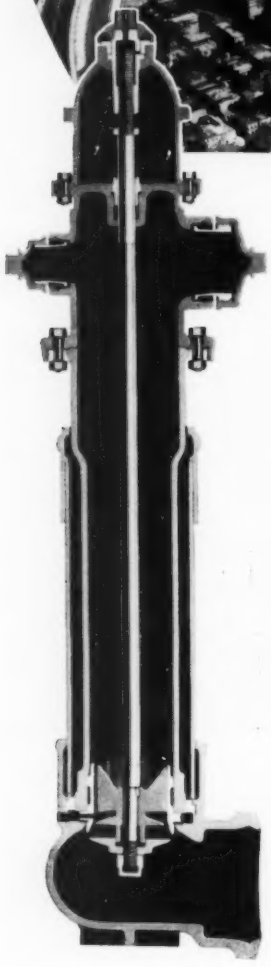


Vitrified CLAY PIPE NEVER WEARS OUT!

C-649-1

11 miles of Vitrified Clay Pipe sewers serve the huge new Chevrolet Parts Plant which sprawls over 40 acres in suburban Parma, outside Cleveland, Ohio. All Clay Pipe except that in crane bay areas is set at normal depths of from two to eight feet. Extra-Strength Vitrified Clay Pipe is set at 12 feet in crane bays, to withstand the strain of heavy presses and cranes.

Architects — Fairbrother and Miehls. Contractors — Darin and Armstrong. Clay Pipe sewer system installed by Feldman Brothers Plumbing and Heating Co. All of Cleveland, Ohio.



CAMDEN, NEW JERSEY

"One of America's Safest Cities"
THE MATHEWS FIREMEN SAY

Why do they say Camden is safe? Because it relies on Mathews Modernized Hydrants. And where there's Mathews, there's safety *plus.*

Mathews Hydrants are so simply and soundly designed there's virtually nothing that *can* go wrong with them. The operating nut is shielded from rain, dust and dirt. The main valve is true compression-type, opening *against* the water pressure. All the working parts are housed in a removable barrel which can be replaced in a matter of minutes, *without excavating*, if the hydrant happens to be knocked down by an out-of-control vehicle. There's no need for on-the-job repairs on a Mathews Hydrant.

Send for our illustrated booklet. You will see why city after city chooses the Mathews Modernized Hydrant as its best protection, and why *your* community should have the same advantage.

OTHER MATHEWS FEATURES: Head can be turned 360° • Replaceable head, nozzle outlets easily changed • Nozzle levels easily raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for strength, toughness, elasticity • Operating thread only part to be oiled • A modern barrel makes any Mathews Hydrant good as new

MATHEWS HYDRANTS

***Made by* R. D. WOOD COMPANY**

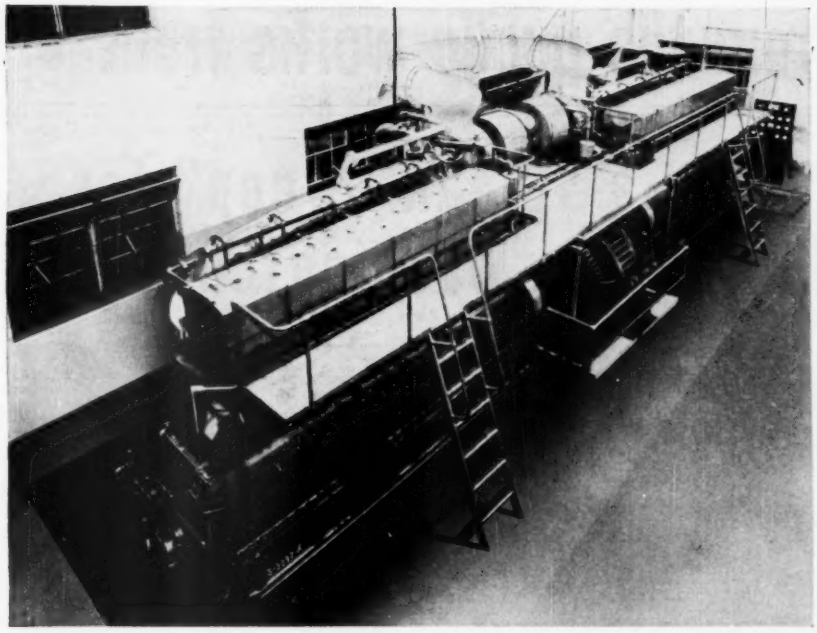
Public Ledger Bldg., Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

NEWS

FROM THE PUBLIC WORKS FRONT

BE REPORTED BY THE DEVELOPMENT ENGINEERS, FIELD SERVICE REPRESENTATIVES AND CUSTOMERS OF WORTHINGTON



Worthington 16 X 20 SEHPG Twin 6 gas Diesel engine in municipal power plant at Lafayette, La.

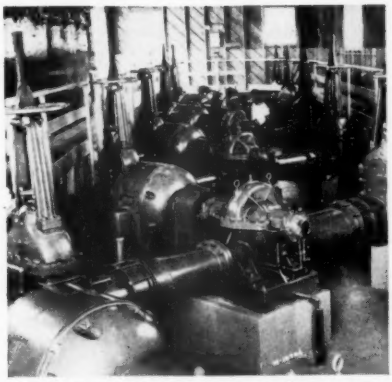
Fueling a Diesel with Gas Saves $5000 a Month

Because natural gas is readily available at Lafayette, Louisiana, the municipal power plant there uses it to fuel its Worthington gas Diesel engine. R. P. Hebert, the chief engineer, says: "Our actual cost of generating power with our Worthington gas Diesel is 2 mils per KW hour. Fuel oil costs 9 mils per KW hour, so we figure that we are actually saving about $5,000 a month by running our Diesel with gas."

But that is not the only saving with Worthington. Mr. Hebert reports: "Next to the low fuel cost of the Worthington gas Diesel, the most remarkable thing about the Worthington engine is its low lube oil consumption. Worthington estimates 4,000 BHP per hour for each gallon of lube oil consumed. Actually, we are getting about 10,000 BHP per gallon."

Maintenance cost is also low. "Maintenance cost on the Worthington Diesel has been low and operation steady. We have been operating the engine at a steady clip. In July, for example, she has operated for 714 out of 744 possible hours."

5 Wartimers Pump 29,160,000,000 Gallons Without Repairs or Shutdowns



Six Worthington pumps and motors in the Lower Otay Pumping Plant, San Diego, Calif.

To increase the water draft on the Otay-San Diego Main Pipe Line, the city of San Diego found it necessary in 1945 to install a booster pumping plant and thus increase the flow from 18 mgd to 27 mgd.

Six Worthington 10" Type LA pumps, driven by 150 hp motors, each unit rated at 5.4 MGD, were placed in operation on July 11, 1945. Five of the pumps are in operation at any one time. The plant has pumped about 27 mgd for a period of 3 years, or a total of 29,160,000,000 gallons, practically without interruption, and without any repairs or material shutdowns.

Mr. Fred D. Pyle, Hydraulic Engineer of this plant, writes, "The pumps and motors have performed in a most satisfactory manner, and are a credit to your company."

Virtually a "Clean Sweep" for Worthington in Washington, D. C.

Worthington horizontal motor-driven water works pumps at Dalecarlia Station, Washington, D. C.

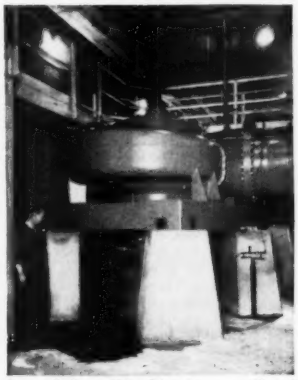
In the District of Columbia practically all of the water flows from source to disposal under the impulse of Worthington.

Drinking water furnished by the Washington Aqueduct, water supply system to the city, is taken from the Potomac River just above Great Falls. It is treated and pumped in part by the Dalecarlia Pumping Station, at the city's western boundary, directly to the District of Columbia distribution mains or to other pumping stations.

Originally there were nine Worthington filtered water pumps installed at Dalecarlia Pumping Station. One of these on being replaced by a larger unit was reinstalled as an emergency booster in the Anacostia area during the war.

The four Sanitary and six Storm Water Pumping Units at the New Jersey Avenue Pumping Station are Worthington-Electric Machinery. Some years ago, when the old steam-driven vertical centrifugals of another make were to be replaced, the contract was given to Suburban Engineering Company of New York whose low bid was based on furnishing Worthington-Electric Machinery units.

From New Jersey Avenue, sewage is pumped to the District's Sewage Treatment Plant at Blue Plains, D. C., where the four main pumps and motors are Worthington-Electric Machinery. From Blue Plains the effluent is returned to the Potomac—thus completing the cycle over which Worthington is encountered every step of the way.



One of four Worthington centrifugal pumps at Blue Plains Sewage Treatment Plant, Washington, D. C.

The District's pumping station at Bryant Street is scheduled to be completely rehabilitated and in connection with this modernization, Worthington has been awarded the contract for ten Worthington-Electric Machinery pumping units.

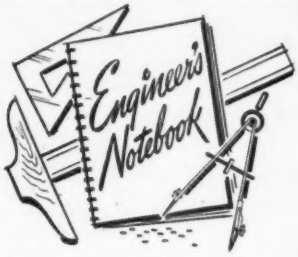
The Dalecarlia Pumping Station also supplies all the public water used by Arlington County, Virginia, where it is pumped into the distribution mains by three Worthington pumps.

Worthington also has tens of thousands of water meters in the District of Columbia measuring the water pumped by Worthington pumps.

The total capacity of Worthington pumps in service and under contract for the District of Columbia water, sanitary, storm water and sewage treatment systems is 1,424,000,000 gallons per day.

Worthington Pump and Machinery Corporation
Harrison, N. J.

NEWS

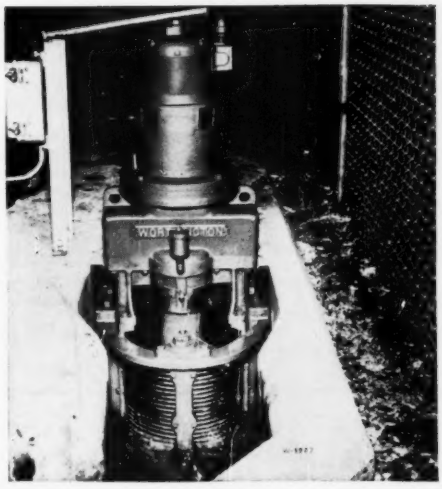


The Comminutor

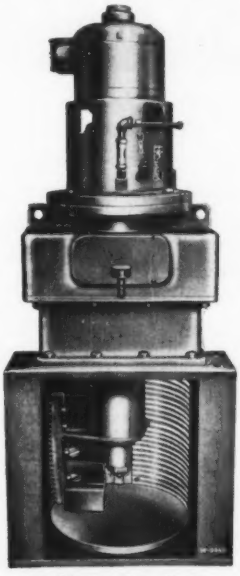
The modern trend toward complete mechanization of sewage treatment plants is marked by the development of the comminutor, the device which screens out large solids in raw sewage and reduces them to a selected working size that will pass through a fine screen without later clogging mechanical equipment.

Comminutors of the type manufactured by Worthington are so designed that they will operate completely automatically, thereby eliminating the undesirable task of screening and disposal. Unsightly solids and offensive odors, usually connected with sewage treatment, can be made annoyances of the past.

Comminutors are generally used as a preliminary to treatment processes. Comminution is best performed by setting the sewage machine in a channel preferably after a grit chamber and preceding a primary settling tank. The comminutor may also be located so as to discharge into a wet well and, if necessary, the motor can be mounted above a possible flood elevation and intermediate shafting employed.



Worthington Comminutor (downstream view) installed in Essex Fells Sewage Treatment Plant, New Jersey.



Worthington Comminutor, upstream view.

The Worthington comminutor is installed in existing or new straight sewage channels in single or multiple units, requiring no special channel design. Since the raw sewage is permitted to flow straight through the screen, installation problems have been simplified and cost minimized.

It consists of a compact, vertical unit comprising a screen, a mechanism for comminuting the screenings, and an electric motor. Only two racks of cutters are employed to simplify occasional sharpening or replacement.

The vertical, semi-circular, stainless steel screen retains all the coarse matter too large to pass through its horizontal 5/16 inch wide slots. An oscillating arm fitted with a rack of stainless steel cutters collects the screenings momentarily accumulated on the screen's inner surface as it moves back and forth through an angle somewhat less than 180 degrees.

Centrally located at the screen is a vertical, stainless steel stationary cutter. Since the teeth on the oscillating cutter pass through the teeth on the stationary cutter as the arm oscillates back and forth, comminution is performed when the solids are engaged between the two. A gradual cutting and shredding action is assured for the oscillating cutter is at an angle relative to the stationary cutter.

The small, vertical electric motor, usually directly mounted on the comminutor, drives the oscillating arm through a Scotch Yoke mechanism, which converts rotary motion into oscillating motion. The speed of the motor is reduced by means of a planetary gear, an integral part of the motor.

The effluent from the comminutor contains cut and shredded solids that have been screened, hence are of a workable size that settles rapidly, less likely to cause large amounts of scum, and do not clog mechanical equipment. Comminution is performed rapidly, continuously, and automatically; consequently the need for screening disposal has been eliminated and sedimentation and sludge digestion improve.

o.o

BURN..... *all dry Refuse with* ONE *handling!*

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It's so obvious! ONE man . . . with ONE handling . . . *completely* disposes of dry, burnable refuse quickly, effortlessly . . . ONE MAN collects *paper, leaves, brush, grass cuttings,* etc. . . . drops it into this 40"-high Burning Cart . . . strikes a match . . . in a minute it's gone — no more handling! The ash catcher protects grass. Dead ashes are thrown away or scattered to nourish lawns.

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BURNING—Welded steel. Built to last—for years!

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SAVES MONEY because it SAVES TIME!

With this incinerator-cart one man does the work of many—in one operation. Cart's 18 cu. ft. capacity saves trips. Perfect balance means bigger, easy-to-handle loads . . . of course, burning-on-the-spot saves loading, trucking, dumping, etc. operations. Result: money saved and a better job done!

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With many Municipal and State budgets tight, now is the time you must economize —and still do the job! The initial cost of these long-lasting Carts will be returned through payroll savings . . . Order now for summer and fall use.

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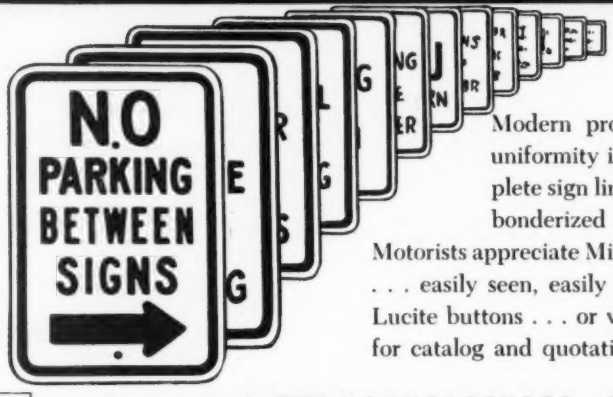

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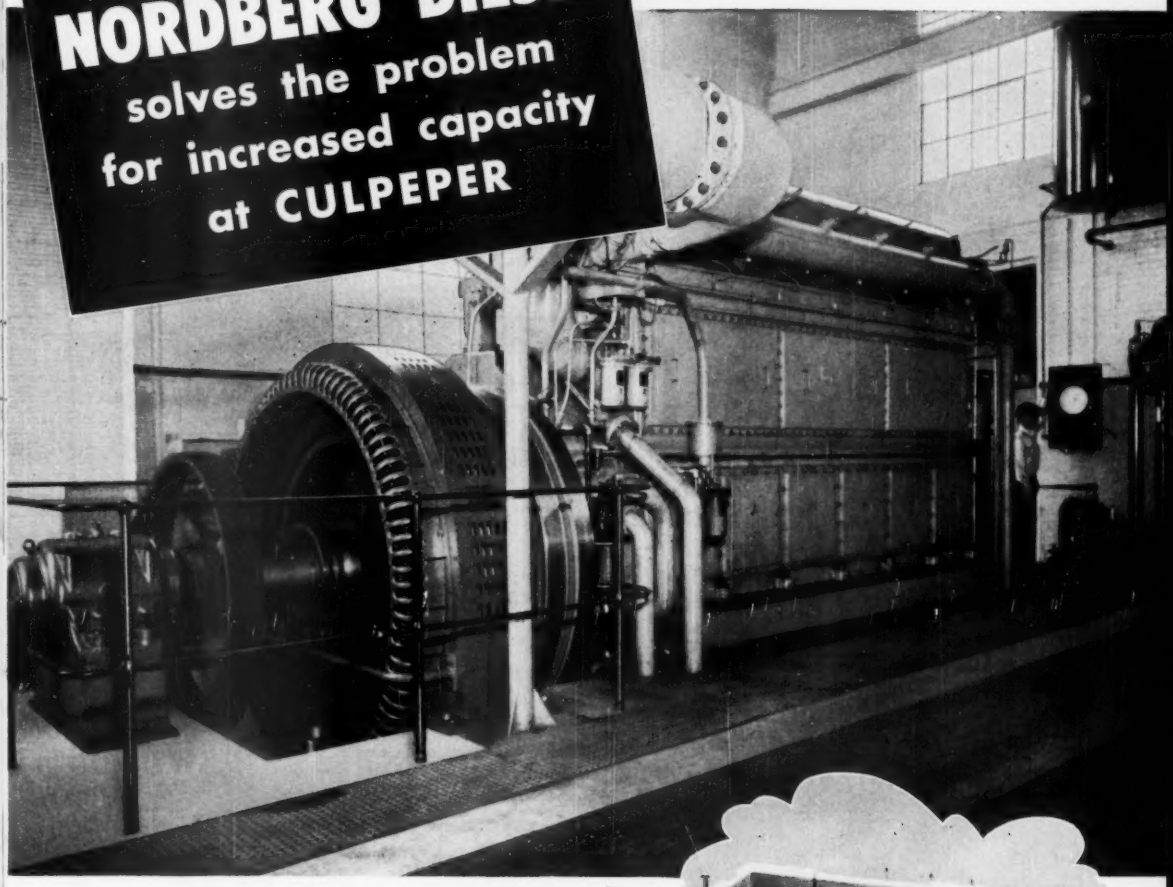
NORDBERG DIESEL
solves the problem for increased capacity at CULPEPER



In 1934, the town of Culpeper, Virginia, switched from public utility power to its own Diesel powered generating plant. As the load grew, additional generating capacity was added, the latest addition being the 1220 H.P. Nordberg Supercharged Duafuel engine which was placed in service in 1948. This oil and gas burning engine has almost as much capacity as the other three units combined. Here is another example of how Nordberg Diesel Engines provide dependable low cost power to meet the increased capacity demands in electric utility and industrial power plants. Nordberg two and four-cycle engines are built in a wide range of types and sizes, from 10 to 8500 H.P. Write for details.

NORDBERG MFG. CO.
MILWAUKEE 7, WISCONSIN

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Nordberg 6-cylinder, 1220 H.P. Supercharged Duafuel Engine recently installed in the municipal power plant at Culpeper, Virginia where residents are celebrating the town's two hundredth anniversary.

A DIVISION OF NORDBERG

NORDBERG
DIESEL ENGINES

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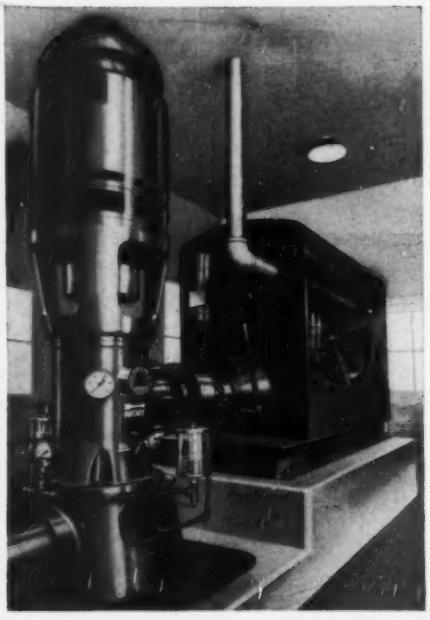

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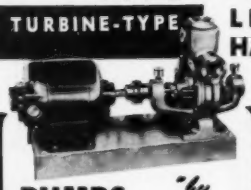

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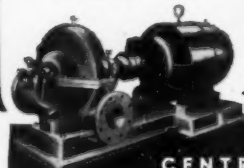

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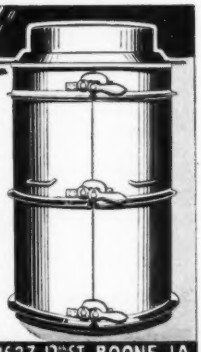

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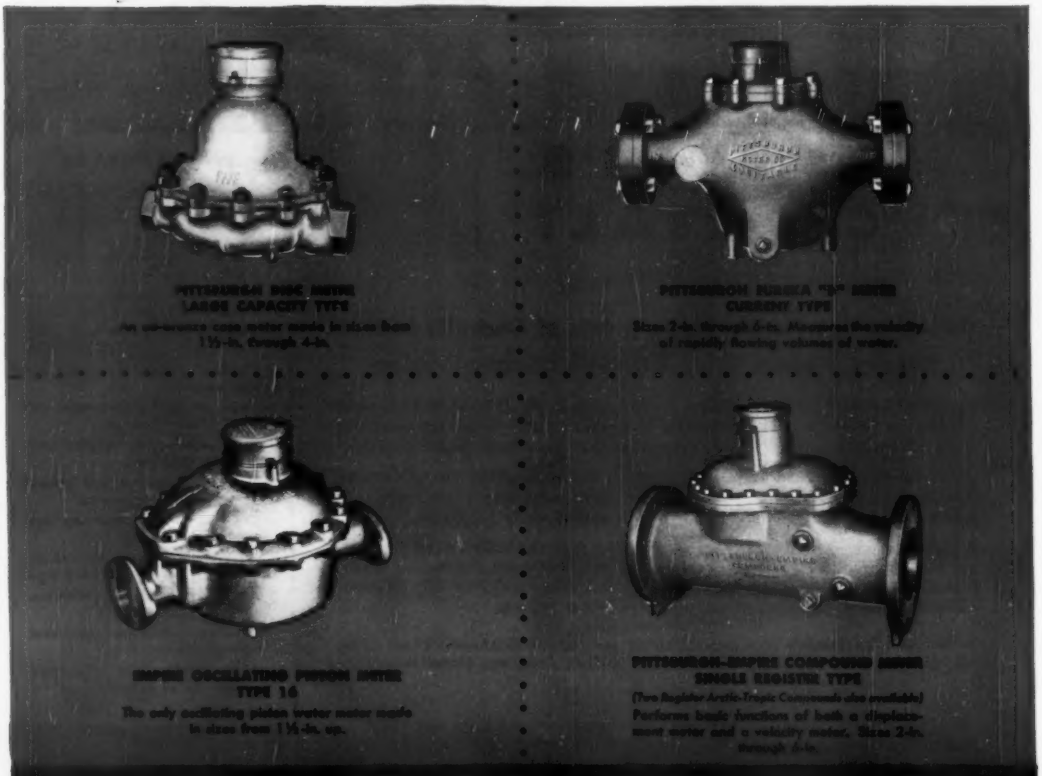

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If you are ready with a Good Roads Leaf Collector when the leaves begin to fall, you can eliminate the dangerous leaf nuisance efficiently, economically, and quickly.

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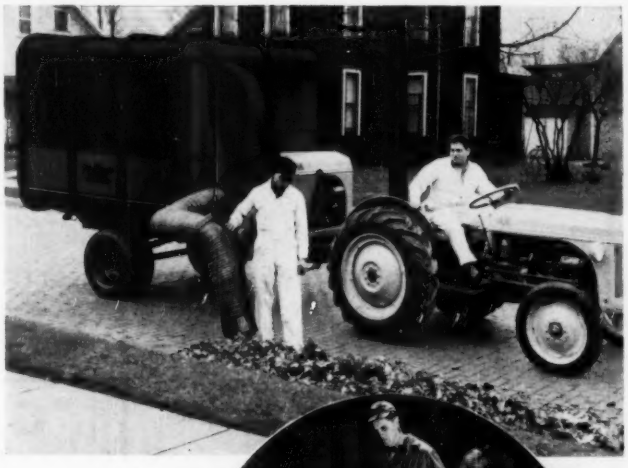
This feature is important in cities where there is too great a distance to travel to the dumping site.



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your city deserves the best—
UNITED STATES BRONZE TABLETS...

for signs, statues, cornerstones, homes, hospitals, schools, municipal buildings

One of the country's largest plants devoted exclusively to bronze tablet work assures you of the *finest* in bronze at *lowest* prices. Free samples, sketches, estimates—prompt mail service. WRITE TODAY FOR FREE CATALOG!

"Bronze Tablet Headquarters"
UNITED STATES BRONZE SIGN CO., INC.
570 Broadway, Dept. AC, New York 12, N. Y.

"Look at those trout belly-up, Joe that means big trouble!"

Sanitary engineering has achieved notable progress in stream pollution control during the past half-century. Sewage treatment was introduced in 1899, the year our Company was organized. Today, more than 6,000 sewage treatment plants serve over half of our urban population. And substantial progress is being made in decontaminating industrial wastes discharged into streams and other waters.

Water supply and gas service have also made notable contributions to better health and living in the past 50 years. Today, more than 12,000 public water supply systems serve 85 million people with safe and palatable water. More than 20 million families are furnished with gas for cooking and heating.

After 50 years of manufacturing cast iron pressure pipe primarily and principally for water, gas and sewerage service, we too can point to a record of progress. In pioneering new and better production methods, such as the centrifugal process of casting—in improved quality controls—and in facilities for research and development. Cast iron pressure pipe as produced today in our several foundries bears witness to that progress—in terms of strength, toughness and uniformity.

To those responsible for the great progress in water supply, gas and sanitation service and their contribution to better health and living over the past fifty years, America pays tribute.

U.S. CAST IRON PIPE

1899-1949
U. S. Pipe & Foundry Co.
Makers for 50 years of cast iron pipe for water, gas and sewerage service.
General Offices: Burlington, N. J.

Every Pound of Weight is on a Wheel THAT DRIVES AND STEERS

That's Why These Graders Outperform All Others

Dominant in the field, these Austin-Western Power Graders owe their matchless performance to *completely effective* use of power. Through All-Wheel Drive, every pound of weight is a powered pound, harnessed to a driving wheel—and contributing every ounce to tractive effort. This tremendous traction—perfectly directed and controlled through All-Wheel Steer—provides superb earth moving ability, and mastery of all types of work from routine grading and ditching to operations never before possible with any motor grader.

Additional values are offered by specialized attachments—many exclusively Austin-Western—which greatly increase the usefulness and day-in and day-out profit making ability of the graders.

Power and control at all four wheels has been pioneered and perfected in grader application by Austin-Western. . . . The "88-H," "99-H," and Master "99" set performance standards unequalled in power grader history.

AUSTIN-WESTERN COMPANY
Aurora, Illinois, U. S. A.

"88-H" Ditching around short radius curves is easy for an "88" or "99"—impossible with any other grader.

"99-H" All-Wheel Drive and Steer make it possible to slope banks beyond the reach of any other grader.

Master "99" All-Wheel Drive and Steer make it safe to drive close to the jagged edge of a steep bank.

BUILDERS OF ROAD MACHINERY
Austin Western
SINCE 1859

now! **BUILDER OF FAMOUS TRACTO-SHOVEL ANNOUNCES**

two new

HYDRAULICALLY OPERATED

TRACTO LOADERS

for all kinds of material handling

model TL-B

- Standard bucket: 10 Cu. Feet
- Weight 5,250 lbs.
- Major tractor components — Allis-Chalmers
- Brake Hp. 27.8
- Max. clearance under bucket hinge, 6' 2"
- NOTE—Interchangeable buckets and other accessories

MORE PRODUCTION WITH LESS OPERATOR EFFORT

FULL LOAD IN BUCKET MAKES STEERING EASIER —NOT HARDER Tracto-Loader design — bucket over driving wheels, steering wheels in rear—gives you better traction, easier steering. Saves bogging down—saves dumping part of load to get out of soft going.

GETS BIG LOADS IN SMALL WORKING AREAS Eases into material—no ramming. Forward crowding action and automatic "tilt-back" of bucket mean fast, easy loading . . . bigger loads, in closest quarters!

HYDRAULIC BUCKET CONTROL Fast-acting, positively controlled bucket can be dumped in part or all at once at any height to maximum. Dumps clean—sticky material shakes loose.

FULL VISION Unobstructed operator vision . . . handy controls, comfortable seat.

HIGHEST QUALITY MATERIALS THROUGHOUT for long, dependable service. Hydraulic system has leak-proof, seamless steel tubing and hose lines with "Instant Fix" detachable and re-usable fittings—no waiting for parts.

model TL-W

- Standard bucket: ½ Cubic Yard
- Weight 8,000 lbs.
- Major tractor components—Allis-Chalmers
- Brake Hp. — 38.45
- Max. clearance under bucket hinge, 8' 8"
- NOTE—Interchangeable buckets and other accessories

get all the facts...send coupon for more information

TRACTOMOTIVE

Tractomotive Corporation ***Now in our new plant at Deerfield, Illinois***

NATION-WIDE SALES AND SERVICE

SOLD AND SERVICED EXCLUSIVELY THROUGH ALLIS-CHALMERS INDUSTRIAL TRACTOR DEALERS

TRACTOMOTIVE CORPORATION • Deerfield, Illinois AC

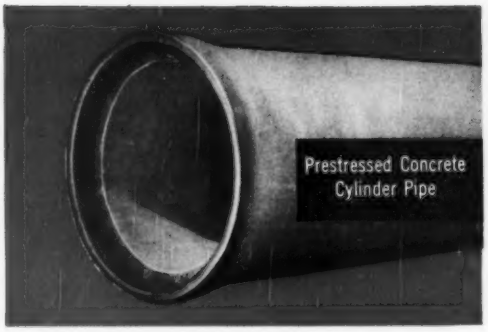
Please send more information on Tracto-Loader: Model TL-W_____, Model TL-B_____

Name_____

Type of Business_____

Street_____

City_____ **State**_____



let LOCK JOINT solve your water supply problems

Lock Joint's four designs of reinforced concrete pressure pipe answer any problem in the field of large-diameter water supply conduits.

All of these designs may be equipped with Lock Joint's flexible, self-centering Rubber and Steel Joint, which simplifies installation and reduces the initial cost of laying the line.

Lock Joint Reinforced Concrete Pressure Pipe is made in all standard diameters from 16" up, and will withstand any pressure common to American water works practice.

* * *

Your inquiry at any of the Company's offices will receive a prompt reply.

LOCK JOINT PIPE COMPANY

Est. 1905

P. O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS
Wharton, N. J., Turner, Kansas

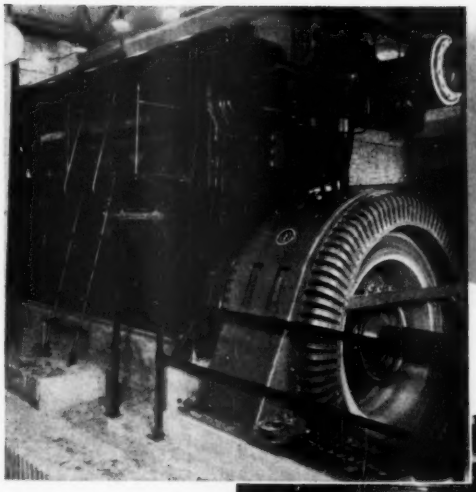
BRANCH OFFICES:
Cheyenne, Wyo. • Denver, Colo. • Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. • Wichita, Kan. Kenilworth, N. J. • Hartford, Conn.

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

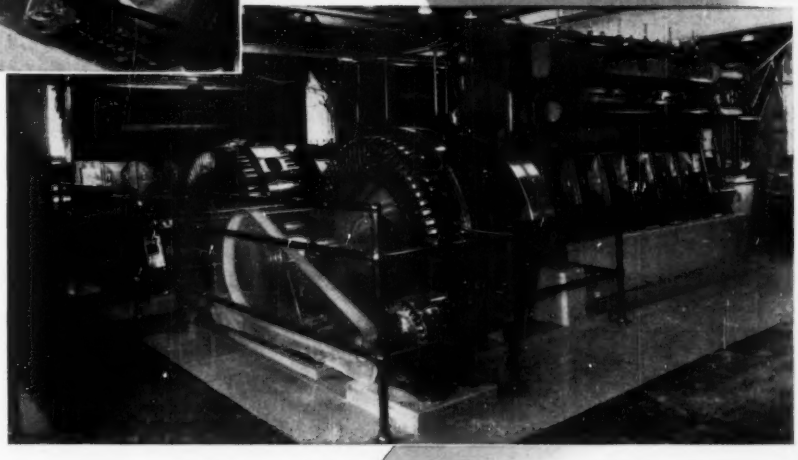
SCOPE OF SERVICES

Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

* * *



Gold is where you find it



● Seven Superior Diesels helped a midwest quarry company find gold—gold in the form of reduced power costs. In only 12 years the use of Diesels reduced the cost of electrical power $156,000, *after all expenses, including depreciation, were deducted!*

But Superior Diesels supplied more than a low cost source of power—they also provided a dependable one. The engines are operated *at least 16 hours daily, 6 days a week, 52 weeks a year!*

Over and over again we hear similar reports about the outstanding performance provided by Superior Diesels. But that's not strange when you consider that Superior has all of the following advantages: Conservative Ratings • Fuel Economy • Precision Bearings • Heavy Rigid Crankshafts • Strong Bases and Cylinder Blocks • Proved Roller Chain Camshaft Drive • Oil Cooled Pistons.

Superior Diesels may be able to help you get gold from your power costs. We would like to discuss it with you—just drop us a line and tell us when it's convenient for you.

THE NATIONAL SUPPLY COMPANY
SUPERIOR ENGINE DIVISION
Plant and General Sales Office: Springfield, Ohio

THE NATIONAL SUPPLY COMPANY NSCO

Superior DIESEL

DIXIE TANK AND BRIDGE CO.

3523 LAMAR AVE.—P. O. BOX 14, MEMPHIS 1, TENNESSEE

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FARGO, N. D. Box No. 1472
COLUMBIA, S. C. Box No. 472
DALLAS, TEXAS Box No. 1881
DENVER, COLO. Box No. 2037
WAUSAU, WIS. Box No. 682
SAN FRANCISCO, CALIF. Box No. 1445
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MACON, GA. Box No. 402
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THE SILENT WATCHMAN

Complete Service for Elevated Water Tanks—30 Years' Experience

BE SAFE DON'T GAMBLE

Keep the Safety Factor in Your Tank the Dixie Way . . .

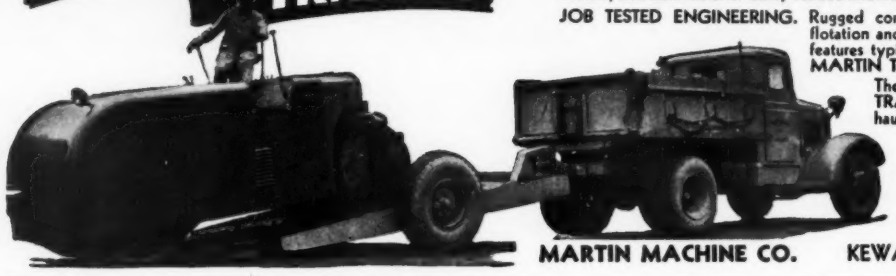
by welding seams, pits and rivets which gives a riveted tank 15% more Safety Factor than it had when built. No rivets removed, water supply maintained while work is in progress. On completely re-conditioned jobs, the painting is guaranteed for five years, repairs guaranteed for ten years, provided the tank is painted every five years. Yearly inspection, making all adjustments, if any, without additional cost.

Write us for Free Copy of Publication

SOUND PRINCIPLES OF WATER TANK MAINTENANCE and TANK TALK, *by* W. A. RILEY
SAFETY • SERVICE • SATISFACTION
COPYRIGHT 1947

THE LARGEST ORGANIZATION OF ITS KIND GIVING SAFE MAINTENANCE AT LOW COST

MARTIN model 22 TRAILER



ANNOUNCING A VERSATILE NEW TRAILER WITH A CAPACITY OF 5 TO 7 TONS.

EXTREMELY LOW PLATFORM HEIGHT. Rollers, Track tractors, and bulk material easily loaded and transported.

JOB TESTED ENGINEERING. Rugged construction, ample flotation and adequate safety features typify all models of MARTIN TRAILERS.

There is a MARTIN TRAILER for every hauling job.

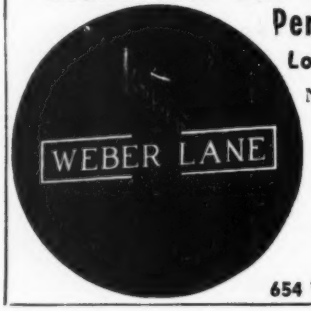
At your request let us send you detailed specifications and prices.

MARTIN MACHINE CO. KEWANEE, ILL.

NIGHT *and* DAY VISIBILITY *with* SUBURBAN STREET MARKER

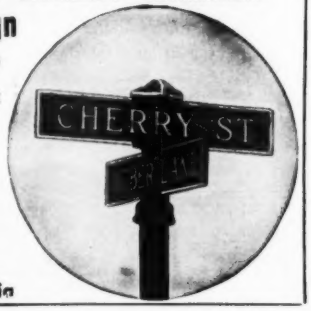
Permanent Aluminum Street Sign

Low Cost **No Maintenance**



No effort has been spared to give you the best street sign ever offered: highly visible by night or day, attractive, simple to install, built to last *years and years.*

Write for further data or for Complete Catalog 220-5.



LAKE SHORE MARKERS
Division of Lake Shore Pattern Works
654 W. 19th Street Erie, Pennsylvania

POWER to mix a big windrow

CONTROL to provide a smooth finish

HEAVY-DUTY model AD-4 has everything you want in a Motor Grader

POWERFUL — 104 brake hp. . . . famous General Motors 2-Cycle Diesel Engine . . . dependable, economical, instant-starting.

HEAVY — 22,140 lbs. effective weight . . . balanced for maximum traction and control.

STRONG — exclusive tubular frame . . . absorbs shocks, protects control rods inside frame.

ACCURATE — blade held firmly on road through direct down pressure . . . cuts smoothly, within fraction of inch of desired depth.

HIGH CLEARANCE — over 30" throat clearance for handling bigger windrows without interference.

TRAVEL SPEEDS — smoothly synchronized with operator controls . . . all the needed power applied as required.

"ROLL-AWAY" MOLDBOARD — less power required to handle bigger windrows at faster speeds. Material is rolled, not pushed.

FULL CIRCLE REVOLVING BLADE — swings *ahead* of platform with plenty of end clearance.

FULL RANGE OF BLADE POSITIONS — plus leaning front wheels, for handling all types of grading with ease. Blade can be shifted, too, to a maximum of 40" right or left.

ELECTRIC BRAKES — Control positive, operate with less effort than auto brakes.

PLUS . . . Easier Steering, Larger Clutch, Electric Gauges, Full Visibility and many other outstanding advantages.

OTHER DIESEL-POWERED SIZES

Model AD-3 - 78 brake hp.; 21,835 lbs.
Model BD-3 - 78 brake hp.; 19,042 lbs.
Model BD-2 - 50.5 brake hp.; 17,772 lbs.
(Same Proved Design As AD-4)

GASOLINE-POWERED

Model W-Speed Patrol
31.5 brake hp.; 6,000 lbs.

ALLIS-CHALMERS

TRACTOR DIVISION . . . MILWAUKEE 1, U. S. A.

Sheriff Carl Enloe puts in a call from his car to his office in Golden, Colorado. All vehicles of this Sheriff's Patrol are equipped with G-E radio for efficient communication in any weather, at any altitude in the area.

● In the Colorado mountains police work is made tougher by problems of terrain and weather. Roads that begin deep down in canyons often climb high above the timberline—thousands of feet up. Communication has always been complicated by high winds, sudden storms, and extraordinary variations in altitude.

For these reasons, the Sheriff's Patrol of Jefferson County now depends on General Electric radio communication. This law enforcement organization, like so many others, finds G-E equipment safe, sure, dependable. Above all, G.E. licks the "dead spots" that are a constant headache to users of 2-way radio in this rough country.

All the facilities of Electronics Park—greatest electronics center in the world—are behind the radio communication representative in the General Electric office nearest you. Call him when you have a problem in communication.

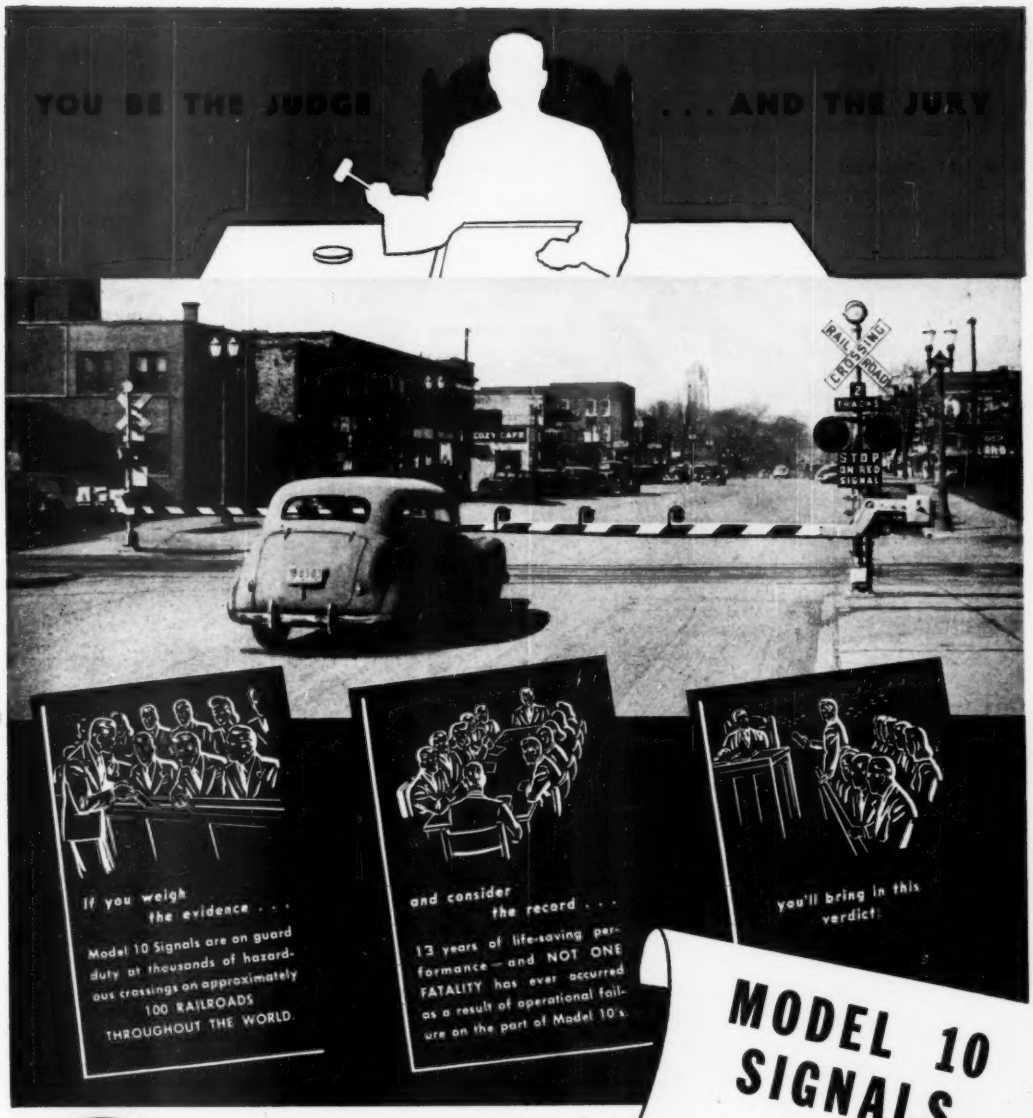
Before You Select Any Radio Equipment—

Get This Bulletin FREE!

Write: *General Electric Company, Box 1122, Electronics Park, Syracuse, New York.*

You, too, can put your confidence in—

GENERAL ELECTRIC


YOU BE THE JUDGE
. . . AND THE JURY
RAIL ROAD CROSSING
STOP ON RED SIGNAL
If you weigh the evidence . . .
Model 10 Signals are on guard duty at thousands of hazardous crossings on approximately 100 RAILROADS THROUGHOUT THE WORLD.
and consider the record . . .
13 years of life-saving performance — and NOT ONE FATALITY has ever occurred as a result of operational failure on the part of Model 10's.
you'll bring in this verdict:

Model 10 HIGHWAY CROSSING SIGNALS

Model 10 Signals operate AUTOMATICALLY, dependably—24 hours a day.

The name "WRRS" means engineering and craftsmanship by *specialists* in the field of safety devices for railroads.

MODEL 10 SIGNALS ARE THE *Best Buy in Safety*

U.S. PAT. NOS. 2,137,196; 2,362,710; 2,372,579. PAT'D in CANADA 6-27-39

MODEL 10 HIGHWAY CROSSING SIGNALS ARE THE PRODUCT OF

WESTERN RAILROAD SUPPLY CO.

Designers and Manufacturers of Safety Devices for Railroads

Write for Brochure 748-AC6

2406-2436 SOUTH ASHLAND AVE.
CHICAGO 8, ILL.

CERTIFICATE OF MERIT — WESTERN RAILROAD SUPPLY CO.

MEMO

Yes, the strength of a parking meter means everything – steady operation under all conditions, low maintenance costs, high income, and avoidance of complaints and criticism. The Husky – companion meter to the famous Karpark "Superior" – is built to deliver all this and more. Be sure to have the facts at hand. Write today.

THE *Husky* AUTOMATIC PARKING METER

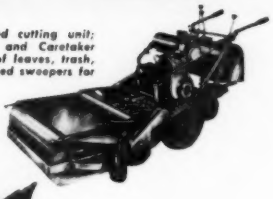
THE KARPARK CORPORATION • CINCINNATI 6, OHIO

IDEAL heavy duty POWER MOWERS

for Economical Lawn Care

The name IDEAL on power mowers carries a long-time reputation for insuring true economy in lawn care. From largest to smallest models, IDEAL Power Lawn Mowers have an efficiency of design and reliability of construction that truly saves man hours on the job. Added to this are the generously rugged parts and high quality materials, which continuously guard against wasteful breakdowns and repairs.

Take off easily removed cutting unit; put on sweeper unit and Caretaker quickly clears grounds of leaves, trash, etc. Also other specialized sweepers for indoor use.



48" Snow Plow attachment keeps walks and drives open all winter.

The IDEAL **New Victor** is available in 24" and 28" widths of cut. The IDEAL **Caretaker,** with 32" center cutter, is remarkably handy and easy to control. Reverse mechanism for backing out of tight corners. Husky 5 hp engine. Operator can ride detachable sulky for real speed. Where space permits, two additional trailer cutting units may be hooked on, giving full 68" swath. For information, see your IDEAL dealer, or write direct.

IDEAL POWER LAWN MOWER CO.
Dept. 541, Springfield, Mass.

in sewage treatment . . .

THERE'S A DORR UNIT *for practically*

EVERY STEP IN EVERY FLOWSHEET

● FOR PRELIMINARY TREATMENT

1. The Dorrco Bar Screen
* The Dorrco Fine Screen
2. The Dorrco Sulzer Disintegrator
3. The Dorr Detritor
* The Dorrco Vacuator

● FOR PRIMARY TREATMENT

* The Dorrco Flocculator
4. The Dorr Clarifier
or
* The Dorrco Monorake

● FOR SECONDARY TREATMENT

5. The Dorr Clarifier
or
* The Dorrco Monorake
6. The Dorrco Distributor

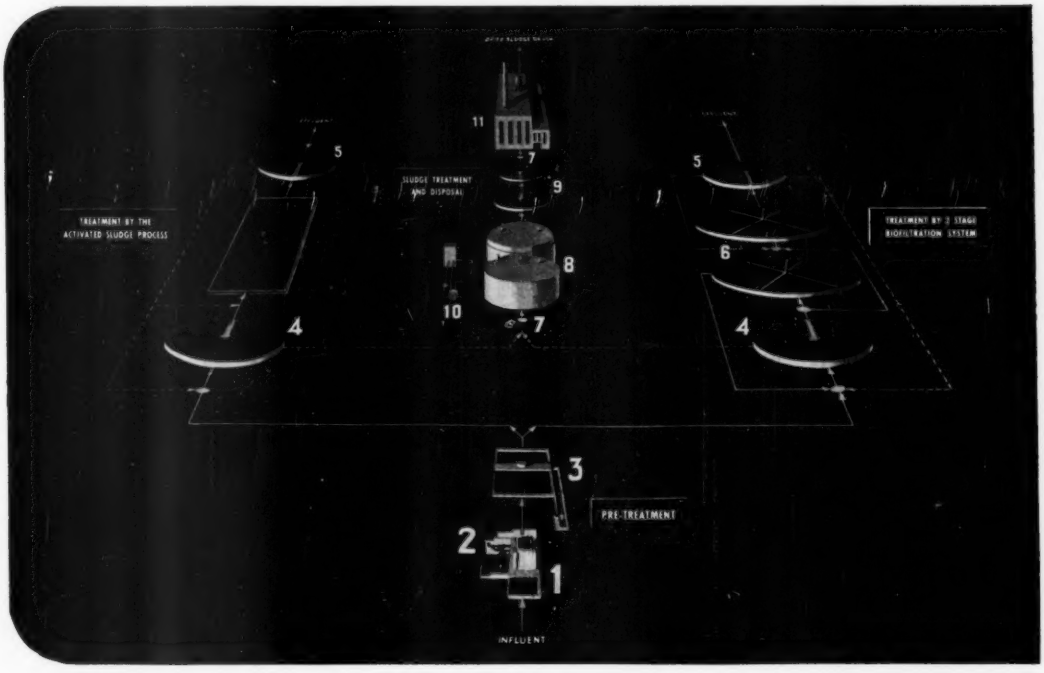
● FOR SLUDGE TREATMENT AND DISPOSAL

7. The Dorrco Sludge Pump
8. The Dorr Multdigestion System
* The Dorr Digester
9. The Dorr Thickener
10. The Spiral Heat Exchanger
11. The C-E Raymond System
(sludge drying/incineration)

● FOR COMBINATION TREATMENT

* The Dorr Duo-Clarifier
(primary and secondary clarification)
* The Dorrco Duo-Filter
(primary and secondary filtration)
* The Dorrco Clariflocculator
(flocculation and clarification)
* The Dorr Clarigester
(clarification and digestion)
* The Currie Claraetor
(aeration and clarification)
* The Dorrco Vacuator
(for grit, scum and solids removal)

* Alternative or combination units not shown on composite drawing.



If you do not already have information on all the Dorr units shown in the composite flowsheet above, write for your copy of "Dorr Equipment and Methods" . . . 12 pages of photos and descriptions covering every unit in the Dorr line.

DORRCO

THE DORR COMPANY, ENGINEERS
570 LEXINGTON AVE., NEW YORK 22, N. Y.
ATLANTA • TORONTO • CHICAGO
DENVER • LOS ANGELES
RESEARCH AND TESTING LABORATORIES
WESTPORT, CONN.
SUGAR PROCESSING
PETREE & DORR DIVISION, NEW YORK 22, N. Y.
ASSOCIATES AND REPRESENTATIVES
Dorr Technical Services and Equipment Are Also Available Through Associated Companies and Representatives in the Principal Cities of the World. Names and Addresses on Request.

DORR
RESEARCH ENGINEERING EQUIPMENT

Accurate receipting... complete protection for both taxpayer and municipality!

BURROUGHS RECEIPTING AND VALIDATING MACHINE

also available without cash drawer

The Burroughs Receipting and Validating Machine is designed to receipt bills and other documents for taxes, fines, fees, etc., and to account for all payments so that the taxpayer, the cashier and the municipality are all completely protected.

Repeat receipting is mechanically enforced. Thus, the taxpayer's bill with the payment receipted on it is an exact duplicate of the record retained by the municipality. This additional record is made by depressing a single key.

The machine marks the bill "paid" and identifies it with a transaction number, date, amount and cashier's symbol.

As a by-product of the bill receipting, the information is recorded on a locked-in audit tape. This serves as a daily cash report, since amounts are automatically added to provide a total of the day's receipts.

BURROUGHS ADDING MACHINE COMPANY, DETROIT 32, MICHIGAN

Protects the Municipality

Enforces correct accounting for payments on same day received.

Protects the Cashier

Identifying symbol limits his responsibility to transactions handled.

Protects the Taxpayer

Assures him full credit for amount paid.

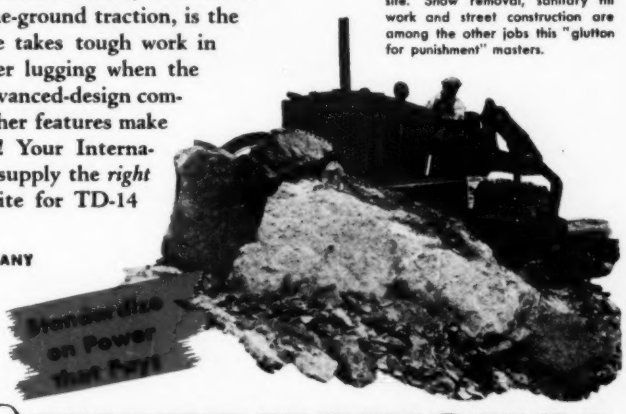
WHEREVER THERE'S BUSINESS THERE'S **Burroughs**

A glutton for punishment, powered by a diesel engine with matchless lugging ability and stamina—this is the tractor for you to use on heavy, back-breaking jobs. The International Crawler, with broad-gauge stability, balance and geared-to-the-ground traction, is the worker you need. ● Its powerful engine takes tough work in stride, with increased torque for heavier lugging when the load demands it. All-weather starting, advanced-design combustion, full pressure lubrication and other features make it *your* obvious choice among tractors! Your International Industrial Power Distributor can supply the *right* size with *matched* equipment, now. Write for TD-14 or TD-18 Folders.

INTERNATIONAL HARVESTER COMPANY
Chicago

Hear James Melton and "Harvest of Stars" every Sunday—NBC

An International TD-14 Diesel puts these rocks in their place with its hydraulic blade to clear a highway site. Snow removal, sanitary fill work and street construction are among the other jobs this "glutton for punishment" masters.



CRAWLER TRACTORS
WHEEL TRACTORS
DIESEL ENGINES
POWER UNITS

INTERNATIONAL HARVESTER

INTERNATIONAL
INDUSTRIAL POWER

ELIMINATE DUST from UNPAVED ROADS with

SOLVAY
Trade-Mark Reg. U. S. Pat. Off.
Calcium Chloride

- Low in cost
- Easy to use
- Clean—Colorless—Odorless
- Saves surfacing material
- Reduces maintenance

SOLVAY SALES DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET NEW YORK 6, N. Y.

LARGE CITIES
are LARGE USERS of
GarWood LOAD-PACKERS

Improve PUBLIC HEALTH

Reduce REFUSE COLLECTION COSTS

Load-Packers are making very large savings in refuse collection costs in the numerous large cities which use them. Many of these cities are standardizing on Load-Packers and replacing other refuse collection equipment as quickly as possible because Load-Packers have PROVED their great superiority under all operating conditions. Gar Wood refuse collection specialists are available for assistance in solving individual problems. Write for Bulletin M-51 which shows how collection costs are cut and public health improved.

Representative Users

New York	200
Baltimore	97
Cincinnati	78
Miami	40
Detroit	150
Indianapolis	30
Richmond	19
New Orleans	26
Houston	20
St. Louis	20

GAR WOOD INDUSTRIES

GAR WOOD INDUSTRIES, INC.
WAYNE DIVISION, WAYNE, MICH.

PRODUCTS—HOISTS • DUMP BODIES • WINCHES • CRANES • TANKS
TRACTOR EQUIPMENT • DITCHERS • SHOVELS • FIREFIGHTERS
SPREADERS • TRUCK PATROLS

GAR WOOD INDUSTRIES, INC. A
Wayne Division, Wayne, Mich.

Please send me Bulletin M-51 telling how Gar Wood Load-Packers will help me reduce refuse collection costs and improve public health.

Name_____

Title_____

Address_____

MANAGEMENT INFORMATION SERVICE

Dear Mayor or Manager:

You may need more tax dollars but first you had better be sure you are getting the most out of the dollars you now spend. Here is how 500 cities and towns are being more certain.

HOW MIS WORKS

You write, wire, or telephone for information on what is considered best practice in handling a specific municipal problem, what other cities are doing about it, what the trend is, etc. For over three decades the International City Managers' Association has collected on a nationwide basis a vast amount of information which it now makes available to all cities on a subscription basis.

MIS ALSO INCLUDES

1. In addition to replies on specific inquiries, subscribing cities receive from one to 12 subscriptions (depending on size of the city) to the monthly journal, Public Management, published since 1919, and devoted to the improvement of municipal administration.

2. Cities also receive from one to 10 copies of The Municipal Year Book, the authoritative resume of the activities and statistical data for more than 2,000 American cities, published since 1934.

3. One copy each of special information reports issued monthly. Partial list of recent reports:

Administration of Non-Property Taxes
Current Pay Rates for Selected City Jobs
Parking Meter Administration
How to Codify Municipal Ordinances
Rules of Order for City Councils
Trend Toward One-Man Police Cars
How to Reduce Insurance Costs
Procedure in Establishing Merit System
Personnel Rules and Regulations
Management of Motor Equipment
Work Programs and Annual Budget Estimates
The Making of Administrative Decisions

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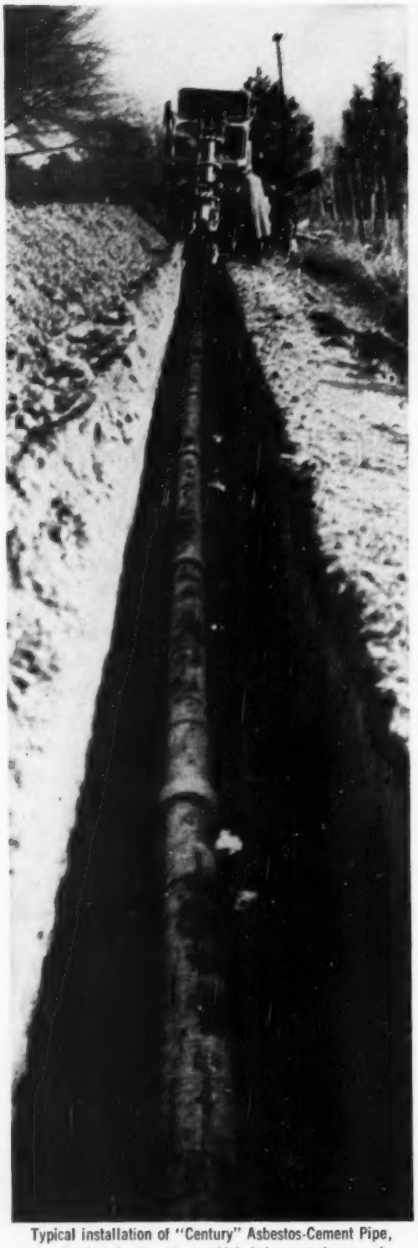

Typical installation of "Century" Asbestos-Cement Pipe, showing length of sections which helps speed up work.

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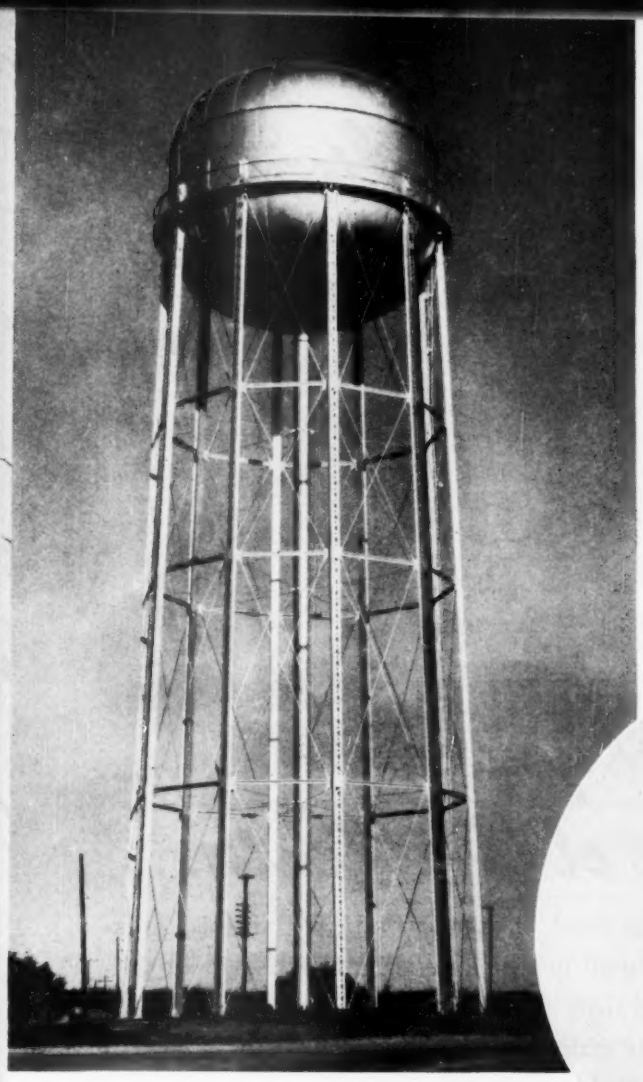

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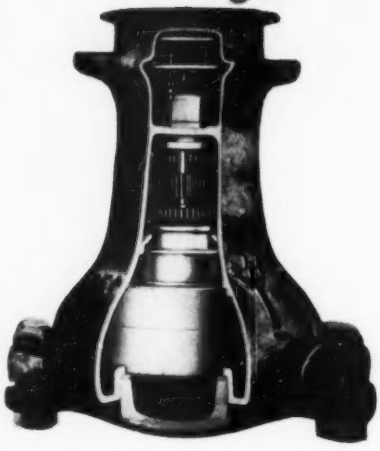

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Evansville, Ind., Becomes Test City For Highway Safety Conference Program

ASSURANCES of the community's willingness to participate in a basic program of traffic improvement, as recommended by the President's Highway Safety Conference Program, were given by Evansville city officials at a meeting in July 1948 with representatives of the Coordinating Committee of twelve national groups headed by Dale Cox of the International Harvester Co., as a representative of the Automobile Manufacturers Association. In turn, the Coordinating Committee promised to provide certain technical advisory assistance to help Evansville with its program, including a public-opinion poll of Evansville motorists, ride-sharers, and pedestrians.

Mayor William H. Dress promptly appointed a traffic committee comprising George Albrecht, of the Automobile Club of Southern Indiana; Phil E. Drachman, of the Evansville Automobile Dealers Association; Glen Bretz, Safety Director for the public schools; E. F. Diekman, City Controller; Arthur Eastwood, of the Retail Merchants Bureau; Lewis S. Ferguson, of the Southwestern Motor Carriers Association; Frank Fish, City Judge; William T.

CONCERNED by the ever-increasing seriousness of traffic congestion and the disturbing fact that crowded streets and highways account for tremendous economic loss, twelve national groups early in 1948 lent their names to the nationwide alleviation of this pressing problem. These national organizations are:

American Automobile Association (Washington, D. C.)
American Petroleum Institute (New York)
American Trucking Association, Inc. (Washington, D. C.)
Automobile Manufacturers Association (Detroit)
National Association of Motor Bus Operators (Washington, D. C.)
National Automobile Dealers Association (Washington, D. C.)
The National Council of Private Motor Truck Owners, Inc. (Washington, D. C.)
National Grange (Washington, D. C.)
National Highway Users Conference (Washington, (D. C.)
The Rubber Manufacturers Association (New York)
Truck-Trailer Manufacturers Association, Inc. (Washington, D. C.)

HERE ARE SOME dimensions of the traffic muddle: Before the war, there were 34,000,000 motor vehicles on our streets and highways; today, 41,000,000 motor vehicles are registered. Truck and bus registrations alone have jumped from 4,948,000 to approximately 7,500,000. Meanwhile, total mileage of roads and streets has increased less than 1%.

BECAUSE of the enormity of the problem, the Coordinating Committee of the groups listed here decided to develop a community traffic-action program in a "test city." If any appreciable results could be achieved in one community, the findings then could be made available for application elsewhere.

●

THE CHOICE OF 'test city" fell to Evansville, Ind., for the following reasons:

It is a medium-sized American city located on the crescent of the Ohio River, in the southwestern corner of Indiana, about 75 miles south and west of the center of population of the United States.

Before the war, Evansville's population was 97,000; today it has an estimated population of 130,000.

The vehicular traffic passing through the city has a strong interstate character. Evansville is about equidistant from Indianapolis, Louisville, Nashville, and St. Louis.

Evansville is the leading manufacturing, commercial, mining, and agricultural center of southwestern Indiana. The industry of the city is diversified and includes over 200 manufacturers.

Motor-vehicle registrations in Evansville had increased by about 7,400 cars and trucks in the first five months of 1948, constituting a heavy load on already taxed street and highway facilities. (Registration records showed 33,200 passenger cars in the county, about 80% of them being in Evansville itself; 5,700 motor trucks were registered; 110 taxicabs; 200 motor buses.)

In addition, the city is serviced by U. S. Highway No. 41, an arterial highway extending from upper Michigan to Florida, and by state roads Nos. 62, 65 and 66. The popularity of U. S. No. 41 as a cross-country road for north-south travel has greatly influenced the character of Evansville's traffic.

The city is serviced by five railroads. The network of railroads is so concentrated that one city street can account for 27 rail crossings.

Vanderburgh County, of which Evansville is the principal city, has voted on the winning side of the last fourteen elections—(since 1896)—a factor which would enhance national interest in public-opinion findings in Evansville.

A Local Traffic-Action Program

ANY COMMUNITY genuinely interested in getting out of its traffic muddle will do well to study carefully the following ten-point action program which is enabling Evansville to relieve city congestion:

1. **Get a factual measurement of traffic efficiency and safety in your city, including parking requirements.**
2. **Adapt modern engineering practices to problems of congestion, delay accidents, traffic control, and parking.**
3. **Expand your schools' traffic-safety-education program, including the training of high-school students in driving.**
4. **Revise your city traffic ordinances, where they are not up to date.**
5. **Improve the adequacy and use of accident records.**
6. **Improve traffic-law enforcement.**
7. **Refine traffic-court procedure.**
8. **Develop a pedestrian-protection program.**
9. **Broaden and correlate public-information activities in the traffic-safety field.**
10. **Develop an effective organization of public officials, civic leaders, and representatives of leading groups.**

Fitzgerald, City Attorney; Edward I. Jacoby, of the International Harvester Company; Ivan A. Martin, of the Evansville Chamber of Commerce, and Harry E. Thompson, of the Junior Chamber of Commerce.

Consulting steadily with this group have been H. B. McCoy, Chairman of the Board of Safety; Police Chief Paul Bonham; Traffic Inspector Emil Strunk, and various automotive and traffic specialists.

For the poll, the Opinion Research Corporation of Princeton, N. J., was engaged. Interviews began in August and continued through early September. No publicity was given the poll and the candid expressions of nearly 1,000 citizens were made known to civic leaders and the press at a special session in the City Council Chambers on November 10. Here is a summary:

Two-fifths of the car-owning families said they avoid shopping downtown because of traffic and parking conditions there.

Two-fifths of the people declared driving in Evansville is difficult; less than a third said it was easy. Half said the city had more traffic congestion than a year ago and only two persons in five believed Evansville was doing a good job of handling its traffic. Only one person in ten indicated he was not annoyed by vehicles in city traffic.

Three-fourths of the people of Evansville agreed that the problem of double parking is serious. Half the city's drivers reported a great deal of trouble with parking downtown.

A few days later, the Mayor's Traffic Committee recommended that the city carry out a complete long-range program, based on an inventory of Evansville's facilities and needs as presented by a representative of the National Safety Council.

Acting on the offer of the coordinating groups to assist in any way possible, the Mayor's Traffic Committee welcomed the aid of Reynolds Weaver, consultant to the President's Highway Safety Conference, as technical consultant for the Evansville Plan. With Mr. Weaver's help, the Mayor's Committee formulated a 10-point action program embodying salient features of the President's conference recommendations. Everyone rolled up his sleeves and the serious business of getting Evansville out of its traffic muddle was begun.

James T. White, who had just completed an outstanding traffic job in Fort Wayne, Ind., was hired as City Traffic Engineer.

Expert Assistance Sought

Expert assistance, both from the state and national levels, was sought. The Mayor's Traffic Committee, for example, requested the State Highway Commission's aid in conducting a thorough parking study, which would be a cooperative project of the Commission and the U. S. Public Roads Administration. Discussions are also under way for such additional studies as street volumes, speeds, driver behavior, and other measures of efficiency.

Because certain sections of Evansville's traffic ordinance were out of date, a comparative study has been completed of the city's laws and of the Model Traffic Ordinance, developed in 1924 and kept up to date. The Automotive Safety Foundation served as consultant to the Traffic Committee in this effort.

To improve accident records, a Police Department order was put into effect December 15 requiring that all accidents investigated by police be reported. The year before, 900 accidents investigated by police were unreported. In addition, the Purdue Public Safety Institute has personnel working with the Police Department on an improved accident-record system.

In cooperation with the City Engineer, the City Planning Department, and the Police and Fire Departments, the newly appointed Traffic Engineer is outlining immediate and longer-range traffic-engineering improvements.

As a step toward sufficient personnel, Evansville added nine new traffic officers to the force, and the officer in charge of traffic was promoted to inspector to put him on an administrative level with other Police Department heads. Seven of the new traffic officers have been sent to Purdue University for a short training course in traffic enforcement. Orders were issued in late December directing all police, whether assigned to traffic or other duties, to make traffic arrests in the course of their daily work. During January, "moving" violation arrests involving personal injury or death rose sharply over the 1948 monthly average; 45% of the arrests were made by police not assigned to traffic. Since January, such arrests have leveled off somewhat, but they still are being maintained to a much better average than existed before.

Traffic-court judges, through the new accident-record system, have immediate access to the accident and violation record of every driver brought into court.

Children, Students, and Pedestrians Considered

The city also has formed a committee on child safety. Membership embraces those directly concerned with school safety patrols, driver-training and other school-safety functions. All high-school students in the public schools are now receiving behind-the-wheel driver instruction. Similar instruction will be given parochial-school students.

Because seven of the eleven fatal accidents in Evansville in 1948 were pedestrian, special emphasis is being directed toward the pedestrian problem.

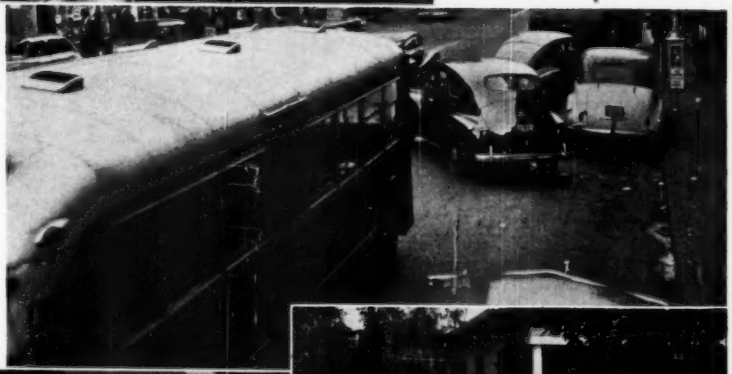
Evansville residents are beginning to be aware of changes in the use of their streets. On busy Riverside Drive, a principal artery, smoother flow is apparent. Angle parking will be eliminated in the next month, allowing more space for moving cars and trucks, and dispensing with the hazard of motorists backing away from the curb. Parking bays are being established and pedestrian islands installed. Throughout the city, new signs and signals are being put into operation. Markings are being placed where they can easily be seen.

Inquiries from other communities that evidence a serious desire for information that will smooth away their own traffic headaches will be referred by the Coordinating Committee to its participating organizations for the specialized information requested.

Correcting Little Mistakes Would Improve the Entire Traffic Picture

Two trucks double-parked force cars to cross center line.

Car parked in bus zone causes bus to stop away from curb, which blocks traffic lane.

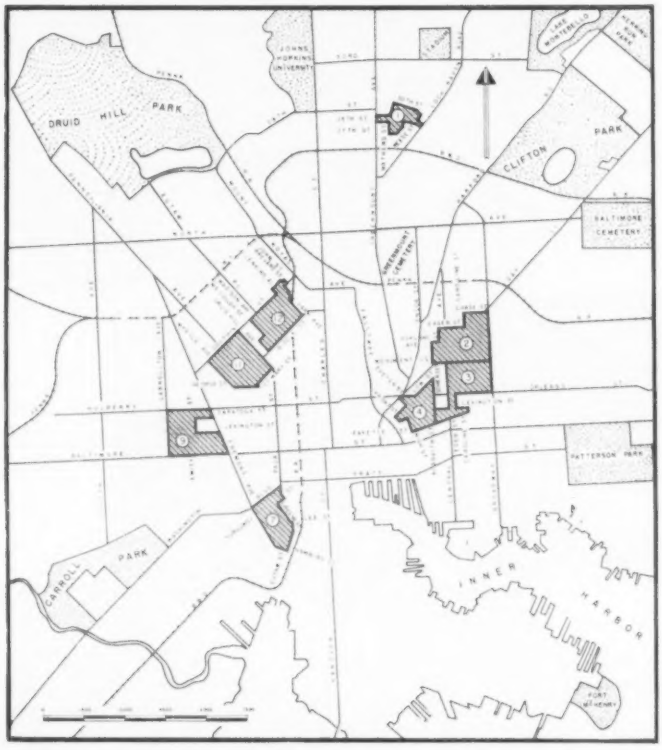


Car leaving parking stall ahead of oncoming traffic and in front of bus stopped away from curb because car parked in or too close to corner.

No use to drivers: Fire-department phone number and illegible Obey Red Light sign.

Sign at right above—look very closely—reads "Dangerous Corner Slow to 20 Miles Per Hour."

Baltimore's Battle With the Slum



This map shows the eight redevelopment areas approved by the Baltimore City Council. Positive efforts to rebuild these areas are being made by the Redevelopment Commission, with the full support of many other city officials.

MUCH attention has been focused recently on the Baltimore Plan—a block-by-block enforcement drive to compel slum landlords and tenants to comply with health and sanitary laws. Widespread and sometimes misleading publicity was originally given the "plan" by certain groups mainly interested in preventing the passage of adequate slum-clearance and public-housing legislation.

Two recent analytical discussions* coolly evaluating the Plan and its accomplishments are of greater interest to municipal officials because they indicate a pattern of organization which other cities might well adopt for a multi-pronged attack on their slum-area problems.

The articles point out that the housing-law-enforcement idea is a good one, but that it is the very least that a city can do for its slum areas. An enforcement campaign alone does not provide much-needed additional housing, nor does it actually rid a city of its slum areas. It does, however, force recalcitrant landlords to make minimum improvements instead of being allowed to milk dry an ever-widening portion of the city's residential area.

Dividends from the Baltimore campaign are also being paid in increasing public awareness of the problems. Writing in the *Atlantic Monthly*, Edgar L. Jones and Burke Davis, of the *Baltimore Sunpapers*, make the following property owners. They have learned that 40% of their staggering city budget goes for the support of downtown slum areas that comprise less than 10% of the city's total area." Messrs. comment: "The Baltimore Plan has awakened in Baltimoreans the realization that taxpayers as a whole underwrite the gilt-edged investments of slum-Jones and Davis make the point that some of the money extracted from low-income families should be forced back into the improvement of slum housing to maintain property values and safeguard public health and safety.

Key Elements of Plan

Following are the key elements in the Baltimore Plan that may be adaptable in other cities:

- Adoption of a carefully prepared municipal housing code defining minimum

* "What 'The Baltimore Plan' Is—and Is *Not*"—By Huntington Williams, Commissioner of Health of Baltimore City, and Wilmer H. Schulze, Director of the Sanitary Section, City Health Department. Reprinted from the *Journal of Housing*, together with other comments on the Baltimore Plan, by the National Association of Housing Officials, 1313 E. 60th St., Chicago 37, Ill. Publication No. N-268. 4 pp. 10 cents.
"Slum Clearance at a Profit"—By Edgar L. Jones and Burke Davis. *Atlantic Monthly*, May 1949, pp. 35-38.

standards for housing sanitation and giving health officials separate power to enforce a program of sanitary housing.

- Establishment of a Housing Law Enforcement Committee, consisting of representatives of the Redevelopment Commission and the Health, Public Works, Fire and Police Departments.
- Establishment of a Housing Court where all housing cases can be heard separately by a single magistrate who both knows and appreciates the value of city housing laws.
- Establishment of a special housing-sanitation squad in the Police Department, consisting of 20 police officers, two in each police district, who devote their full time to the correction of unsanitary conditions.
- Close cooperation of all related official agencies, including the Bureau of Building Inspection, the City Comptroller, the Planning Commission, the Fire Department, the Bureau of Sanitation, the Redevelopment Commission, the Welfare Department, and the Housing Authority.

Among the other factors which have sparked an enlightened and comprehensive approach to Baltimore's current efforts at slum-area improvement are an active civic group, the Baltimore Citizens Planning and Housing Association; the newspaper, *The Evening Sun*, which has given "superb support" to all slum improvement efforts and campaigns; and active backing through pamphlets, exhibitions, and photography contests, by such public institutions as the Peale Museum and the Enoch Pratt Library.

Special credit is, of course, also due Mayor Thomas D'Alesandro, Jr., for his leadership on both the local and national scenes in behalf of comprehensive slum-clearance and housing programs.

For a Positive Building Program

That a positive public role in housing and slum area rebuilding must be coupled with enforcement of minimum housing standards is recognized in the plans and programs of the Housing Authority of Baltimore City and the Baltimore Redevelopment Commission, both of which agencies cooperate closely with the Planning Commission.

Baltimore voters authorized a bond issue of $5,000,000 for acquisition of land for redevelopment purposes in November 1948 by a large majority. The Maryland General Assembly in its 1949 session passed an amendment to the Baltimore City Charter granting the city new, broad, home-rule redevelopment powers. Following up the state's action, an administration-sponsored ordinance was introduced in the Baltimore City Council which will give the Redevelopment Commission a much freer hand and provide a sound legal foundation for future Baltimore redevelopment.

The Baltimore Plan, therefore, when considered as including housing-code enforcement, civic and public education, and positive public building and rebuilding programs, is surely one from which other cities can learn a great deal.

EDITOR'S NOTE: Here are some recent reports on urban redevelopment:

RETHINKING URBAN REDEVELOPMENT—By Coleman Woodbury and Frederick A. Gutheim. Public Administration Service, 1313 E. 60th St., Chicago 37, Ill. Urban Redevelopment Series No. 1. 1949. 26 pp. $1.00.

REBUILDING WITHOUT CONGESTION, A POLICY FOR CENTRAL CITY DEVELOPMENT—Published by Regional Plan Association, Inc., 205 E. 42nd St., New York 17, N. Y. March 1949. 8 pp. 50 cents.

REBUILDING PROVIDENCE, 1948 ANNUAL REPORT—Providence Redevelopment Agency, Room 104, City Hall, Providence, R. I. 1949. 18 pp.

A REPORT OF THE REDEVELOPMENT AUTHORITY, CITY OF PHILADELPHIA, 1948—Philadelphia Redevelopment Authority, Board of Education Building, Philadelphia 3, Pa. January 1949. 34 pp.

REDEVELOPMENT PROJECT NO. 1—Chicago Land Clearance Commission, 69 West Washington St., Chicago, Ill. March 1949. 58 pp.

ACCOMPLISHMENTS, 1948—City Planning Commission, Los Angeles, Calif., May 1949. 48 pp. Contains a review of redevelopment activities in Los Angeles, including a special study of the Chavez Ravine Area.

A Providence Redevelopment Area

This photograph is reproduced from the 1948 Annual Report of the Providence Redevelopment Agency. The report shows that the redevelopment of the run-down area here illustrated could mean an essential parkway along the river and 400 new apartments, with a $50,000 increased tax return per year on a $400,000 public investment and a $5,000,000 private investment.

Let's Simplify Tax Work

The purpose is to collect taxes, not to create needless records. The time has come for a uniform system of tax accounting

THE PROBLEMS OF BANKS, UTILITIES, AND COMMERCIAL houses which have adopted machine-accounting practices are no different, so far as the figures go, from those of municipalities. This is particularly the case with tax accounting and billing. Banks have long since discarded the old Boston ledger, which is comparable with the assessment rolls used in tax work. Banks use the individual ledger card. So do some municipalities; all can use it advantageously if existing legal restrictions are lifted. With modern machine-accounting methods there is no valid reason why these restrictions should be continued.

By ALDEN W. WELCH
Research Editor
The American City

MUNICIPALITIES grow up along one of two lines: either they are bound by laws or they are managed by politicians—so said a sales representative of a manufacturer of accounting machines. The best municipality is the one whose politicians or officials understand that the laws or ordinances are not only to safeguard the citizens, including taxpayers, but also to aid in obtaining beneficial improvements.

Institutional purchasing and the buying by municipalities of such standard commodities as stationery, gasoline, fuel oil, coal, and to a lesser degree foods, must and should be transacted on the basis of specifications and bids, and the lowest offer is usually the right one to accept. In this field the central purchasing agent, in the 300-odd cities having one, is usually responsible for the selection and purchase of commodities. On these standard commodities he calls for bids at regular intervals. He supervises the drawing of specifications, maintains the list of bidders, opens and compares the bids, lets the contract, and accounts for deliveries and quality. He works within the law that establishes buying practices without feeling any constriction.

In an economy of standardized goods, where patents had all run out or been voided, where inventive genius was not encouraged and where the incentive to produce better products was absent, well-drawn laws regulating governmental purchasing would work like a charm.

The law becomes an obstacle to wise buying only where goods differ in performance and results.

A step up from standard commodities are such machines as pumps, engines, trucks, etc. There are many types and models in each group, and each make has its points. Nevertheless, a pump pumps, an engine develops power, a truck hauls.

But consider the accounting machine. What does the municipality furnish for the tax- or utility-accounting machine? Blank bill forms? It furnishes much more than such a simple end product. It furnishes a list of properties and owners, valuations on each parcel, a tax rate, and says, "we want an assessment roll listing all the properties; a ledger card covering in detail every individual property with taxes paid and taxes due; accurate, legible tax bills, machine-computed and written on time; payments posted to the correct ledgers, and a statement of delinquent accounts.

Every manufacturer, moreover, makes more than one model to suit differing system and population needs. A small town or a certain time-honored tax-accounting and billing system may be served best by a machine which has a descriptive and numeric keyboard. A larger town may need a more highly specialized machine. Belief that a certain type of machine is essential may exclude others. There are situations at present where a particular type is exactly the right kind of machine to purchase even if all the other manufacturers are excluded. Here is where the municipal officials must interpret the law in terms of public benefit. The simple method to obtain the desired machine is to introduce into specifications several requirements that are met only by this machine. While the purpose is sincere, it will also be obvious and cause lifted eyebrows at the least.

But Will Only That Machine Do the Job?

The danger of settling on only one accounting machine is that possibly one of another type will actually perform the work as well or better, if the work and the various machines were better understood by the officials and the salesmen. The salesmen know what their machine will do in banks, department stores, public utilities, and for automobile dealers. The machines have a flexibility that permits them to be adjusted to meet certain standard requirements in a given commercial line.

While municipal accounting—or specifically tax accounting—is no more difficult or mysterious than any other branch of accounting, its philosophy has been thought through by only a very few manufacturers and the barest handful of their representatives have been trained to sell the machine specifically for municipal accounting. On the other side are the municipal officials. They know the tax job that must be done, but they don't know how the machines do it or whether or not a given machine can do it. In most cases difficulties are encountered before very long.

The manufacturers employing municipal specialists will be able to demonstrate how their machines will actually perform the successive operations in tax accounting and billing. The regular commercial salesmen of the other manufacturers are likely to be stumped at the first unorthodox requirement—such as handling the descriptive matter, an extra column of addition, or a 7-decimal tax rate. The machine of one of these manufacturers may be able to do a better job than any of the others. To establish this often requires a working knowledge of tax work and an understanding of the adjustment possibilities of their machine.

When the manufacturer with the soundest municipal specialist wins the contract, the commercial salesmen of other manufacturers are likely to charge favoritism, politics, and even corruption. They so report to their general offices, and municipal business gradually falls in unsavory or at least unprofitable repute among some of the manufacturers. This is too bad for the efficient machines which are hardly to blame for not being accepted more often. It is too bad for their manu-

facturers, because the market for municipal accounting machines is large, broad, and awake. It is too bad for the municipalities, because the lack of this knowledge of how certain machines can be fitted to any given tax system tends to exclude some of the best machines, restricts competition, and holds back more rapid mechanization.

A Concrete Example

A branch office representative of a manufacturer had practically sold his machine to a neighboring municipality. All that remained was acceptance by the town council. At the council meeting the salesman found not only the salesmen of two other manufacturers but the state auditor as well. Councilmen and the town treasurer expressed their willingness to purchase this machine. The mayor asked the state auditor if he had any comment. The latter said that of course he had no leaning toward any particular make of machine, but he felt that a descriptive machine, one having a typewriter keyboard as well as calculating mechanism, would do the most satisfactory job for the town. One of the other salesmen demonstrated the descriptive feature of his machine and this machine was purchased. The disappointed salesman reported this experience to his company, which decided, on the basis of several such experiences, to stop going after any more municipal business in this state and to pull out of the entire municipal market nationally.

What were all the facts, the background, in this case? The state auditor's job was to supervise the accounts of the municipalities of the state. When he was appointed he found laxity on audits and had to find out what was wrong. He decided that to simplify the work, his department should outline a method and offer model forms for the municipalities to follow if they desired. Finding a certain machine in greatest use, he consulted the manufacturer on the matter of standard forms to be used in a uniform method. He outlined on paper what he believed the forms should look like and asked the manufacturer if his machine would do the work indicated. The manufacturer set up a machine in a branch office in the auditor's state and demonstrated that the machine would do the work. The state auditor passed on the results, not on the machine. He asked that the machine be sent to the state capital so that his superior could see and judge the results.

The superior called a meeting of outside auditors to whom the reasons for the forms were explained. Incidentally, in the state all outside auditors must be accredited by the proper state authority. The system outlined called for descriptive matter as well as figures. The state auditor wanted no entry made on a ledger except by machine, and supported by a journal entry made at the same time when the charge is set up. To meet this requirement, a billing journal sheet would be inserted. Several such journals would be required, such as a journal of cash receipts and a journal of remission of taxes. On the cash book the name, not the account number alone, of the taxpayer was required. On overpayment notices, which were created at the same time the cash-posting occurred, the name and address and the reason for overpayment were typed in on the cash sheet and on the notice in one operation. One copy of this notice became a ledger account of overpayments and the other was a notice to taxpayer or comptroller of the refund necessary. The reason for so many overpayments was that the first half-year taxes are billed at the current year's rate and many adjustments had to be made. The aim of the state auditor was to have these adjustments clearly described in order to confirm his audit.

All journal entries and cancellations of tax amounts set up on the regular tax ledger were completely described as the entry was made, and a journal was created in the same operation. To do this required either a descriptive bookkeeping machine or a non-descriptive machine used in conjunction with a typewriter.

Now, to return to the municipality which had decided, pending council approval, to buy a non-descriptive machine. The government specialist of a competitor heard of this potential order and hurried to the town. He explained how his machine could perform the work. Would he make a contribution to the party's fund? His competitor, he was told, had agreed to put up $150. No, he could not do that. He telephoned the mayor, who called a meeting of the council to decide which machine to buy and asked the state auditor to sit in. At this meeting the state auditor told what information the state wanted in making its audit. The specialist explained how his machine could furnish the information as required. The salesman who thought he had the order got up and walked out of the meeting, convinced that there was partiality. Yet his machine was so simple and fast that it brought about a partial redesign of the competing machine to meet more successfully the automatic features of the other machine. It would appear that these automatic features might have been more strongly sold and the descriptive requirements treated vigorously as an attendant job to be performed by a typewriter.

For 16 years before the war, the city commission of a city of about 100,000 steadfastly refused to approve the purchase of accounting machines, though the City Comptroller annually put them in his budget. Then articles began appearing on the clear advantages of mechanized tax work, and machines were purchased. Today the city has 20 of these machines, worth around $60,000, and is proud and happy over the results. These machines were made by our disappointed salesman's company and this city is in his state.

Hundreds of cities and towns have gone to mechanized accounting, using either bookkeeping or punched-card accounting machines, or installed more accounting machines in the last 15 years. The sheer values of mechanized accounting have won alert attention in an accounting field that tends to leave well enough alone or wait until dissatisfied outside auditors or the public force changes. What now is needed is a better general understanding of basic tax-accounting and billing requirements. Too many municipalities insist on special local requirements that have little or nothing to do with the desired result—collection of the highest percentage of taxes possible with fewest delinquencies.

Time for a Uniform System

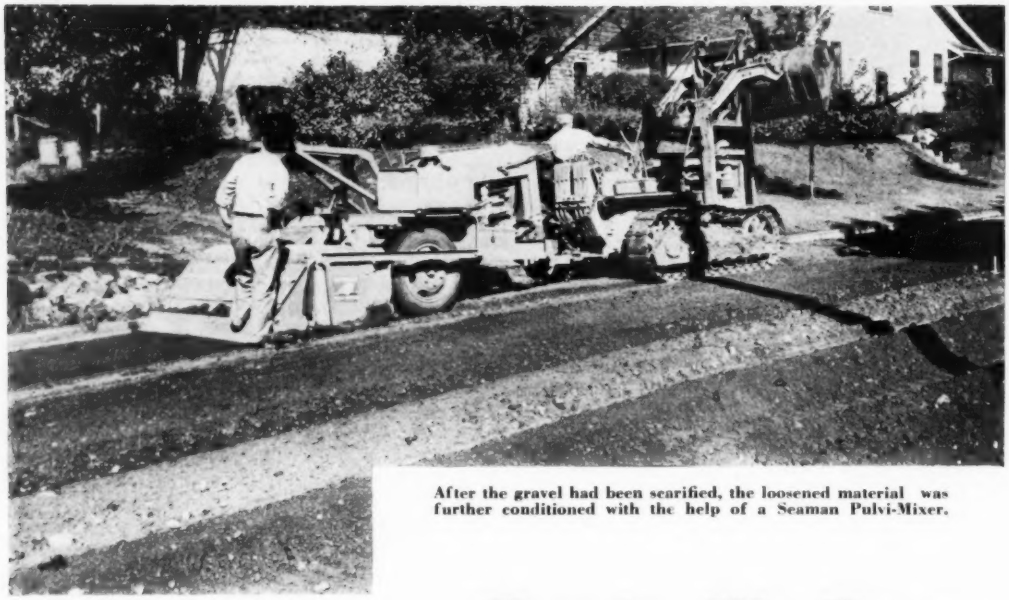
THE AMERICAN CITY suggests that the Municipal Finance Officers Association make this a project to be pushed until a simplified statement of essential universal tax-accounting operations can be agreed on by all reasonable tax officers and municipal officials in all the states. It should begin with a breakdown of the procedure to its lowest terms. The basic data consist of the assessor's list of properties, descriptions, names and addresses of owners, valuations, and account numbers. The first accounting document or record is the assesment roll. Need it carry all these data, or are the account numbers and valuations sufficient, the descriptive data being only on the assessment-ledger sheets or cards? Need there be an assessment roll?

The second accounting record is the unit tax ledger on individual cards where possible, or a record in a bound book where this is required by state law. Must this ledger repeat the descriptive data on the assessment ledger, or are account numbers sufficient? Why should there be a tax roll when there is a tax-ledger card?

The third accounting record is the tax bill. Must it carry the descriptive data, or is the account number sufficient?

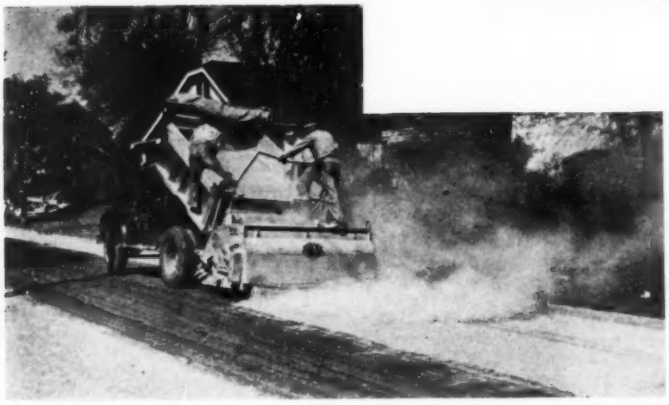
What other tax records are necessary? Add these that are and drop those that are not. The object is to

(*Continued on page* 133)



After the gravel had been scarified, the loosened material was further conditioned with the help of a Seaman Pulvi-Mixer.

Peoria, Ill., Paves



Next a Smith spreader, attached to a dump truck, applies cement to the base.

After the cement and the base material have been mixed thoroughly, controlled quantities of water are added by tank truck, and the material is mixed again.

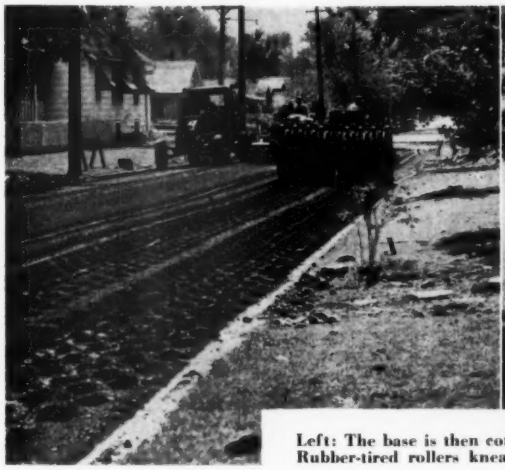
THE question, how to salvage the many miles of gravel streets in Peoria, Ill. (population 104,969, 1940 census), seems to receive an economical answer through the work of Public Works Commissioner L. D. Jeffries. Commissioner Jeffries has employed soil-cement construction topped with an asphalt surfacing, the improvement costing only $1.93 per square yard.

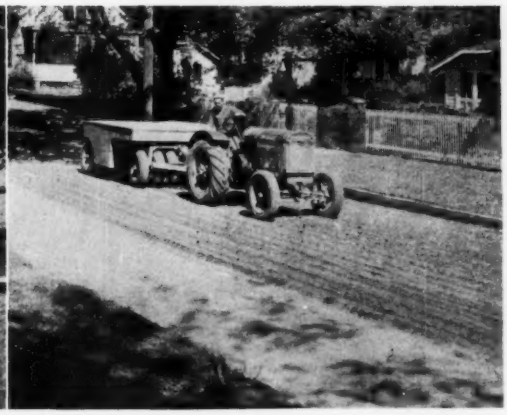
Applying gravel to the street over the years has resulted in a soil that is relatively coarse-grained. An analysis of the soil showed that it needed 2.7 bags of cement per cubic yard of compacted mixture, or 0.45 bags per square yard of 6-inch compacted depth. Percentage-wise this means 9% cement.

Construction

The construction procedure was to break up the old gravel base and bituminous mixture with a Caterpillar No. 12 grader equipped with a scarifier. A Seaman Pulvi-Mixer pulled by a Caterpillar diesel D4 tractor pulverized the material and later worked the cement into the mixture.

The motor grader then shaped the street surface, after which water was added to bring the mix to optimum moisture content and the entire mass mixed again. A sheep's-foot roller compacted the soil-cement base and a 10-





Left: The base is then compacted until the sheep's-foot rollers "walk out." Right: Rubber-tired rollers knead top loose material into the base to make it smooth.

With Soil Cement

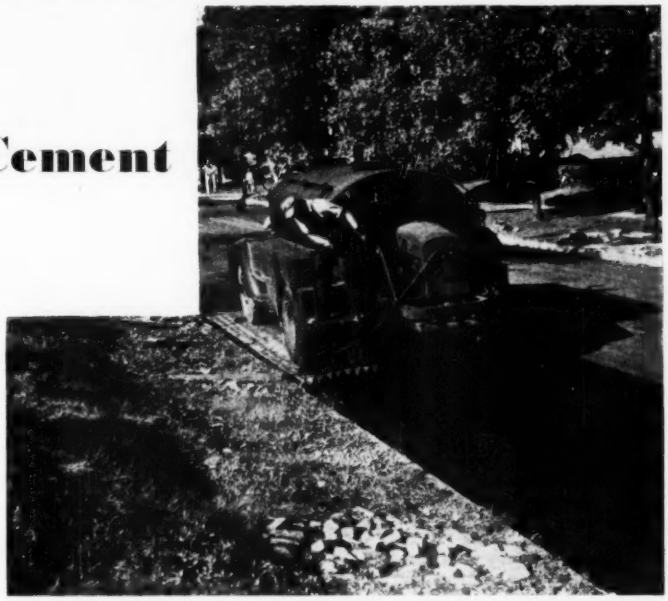
ton solid-tired roller knitted down the top inch of material. The street was then shaped to final grade and crown, and a 6-ton pneumatic-tired roller completed the base compaction.

The fresh soil-cement base was sealed with an application of light cut-back asphalt. The surface of the soil-cement street was sprayed with approximately 0.5 gallons of water per square yard before applying the bituminous cover. The time intervening between the water application and the application of the bitumen varied according to the time needed for the surface water to penetrate into the soil cement. This ranged from about 1 to 10 minutes.

Inspection of the bitumen penetration showed from virtually no penetration to about one-eighth inch depending on the soil-cement surface densities. The bituminous cover appeared to adhere well to the soil-cement base. A wearing surface about 1½ inches thick was placed with an Adnun paver on the base .

The soil-cement base material showed by field test a maximum density of 133.9 pounds per cubic foot at an optimum moisture of 6.2%.

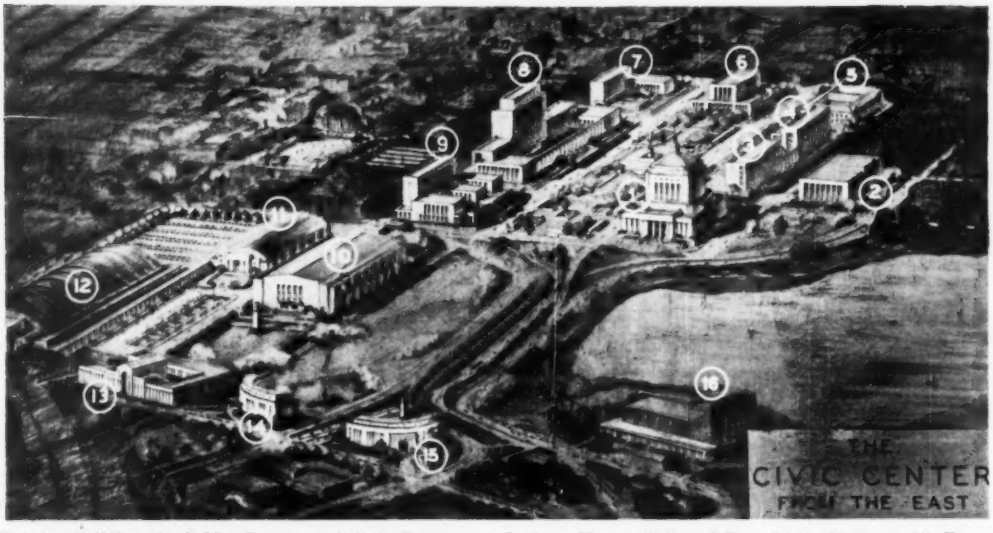
The base construction was placed by R. A. Cullinan and Son of Tremont, Ill. Seneca Petroleum Co., handled the asphalt surfacing.



The compacted base is primed with a light application of cut-back asphalt.

An Adnun paver lays the final wearing surface, compacted with a steel-tired 10-ton Galion roller, to produce a smooth, finished street ready for traffic.

Oakland Reports Progress on Civic Center



Existing buildings in Oakland's proposed Civic Center are: 1. Court House; 5. Post Office; 10. Auditorium; 11. Exposition Building, and 13. School Administration Building. New buildings will be: 2. Main Library; 3. County Building; 4. Federal Building; 6. State Building; 7. Unassigned; 8. City Hall; 9. Justice Building; 12. Civic Arena; 14. Museum; 15. Art Gallery, and 16. Opera House.

Development of this lake-front civic center will facilitate public business and relieve traffic congestion

By EARL O. MILLS
Planning Consultant
and
JOHN G. MARR
Engineer
City Planning Commission
Oakland, Calif.

THE achievement of community-wide agreement upon a definite location and plan for a distinctive civic center in Oakland was, to be sure, no small task. Various attempts were made over a period of years with little success, until it was finally recognized by the civic leaders that "human engineering" is just as indispensable as "technical engineering."

Site Selection

In its unrelenting effort, the City Council late in 1944, appropriated funds for another civic-center study to be made under the direction of the City Planning Commission, with the assistance of a planning consultant and a local board of architects, all of whom were to collaborate in the production of a comprehensive report. An examination of the data pertaining to the location, character, and capacity of existing public buildings and the public agencies' renting office accommodations in Oakland left little doubt as to the need for more adequate, convenient and modern accommodations.

In the process of trying to select the best site possible from the many locations considered, various important factors were necessarily taken into account, i.e., proximity to the central business district; relationship to present and future population; focal position or accessibility; topographic or scenic features; physical character of the site and surroundings; existing parks or open spaces within or adjoining the area; acquisition cost and other relevant factors. Each of these factors had to be dealt with satisfactorily if the public-building group was to attain the highest ideals of usefulness and attractiveness. Obviously, too, such a large and important public improvement, to be fully justified, must be broadly conceived, well executed in detail, and properly integrated into the city's structure and master plan.

In the location and grouping of public buildings, opportunities afforded by unusual topographic or scenic features should, of course, be given special consideration. In this respect Oakland is unique in its possession of beautiful Lake Merritt, situated within a few blocks of the central business district. This inland salt-water lake, which covers an area of 160 acres, is approximately one mile long and is alleged to be the only tidal lake in the heart of any American city. Surrounded by an attractive park and lakeshore drive, the lake gives Oakland a distinctiveness rarely encountered in the center of American cities.

Other important elements of city planning involved in the study of the civic center included land use, traffic, thoroughfares, parking, transit, public open spaces and a knowledge of all relevant recommendations for future metropolitan development.

One of the most difficult and urgent problems encountered in the layout of the site finally approved, which is at the southern end of Lake Merritt was that of coordinating the public-building-group plan with a satisfactory traffic solution for handling the 50,000 vehicles per day across the Twelfth Street Dam. Several alternate traffic plans were studied in an attempt to reconcile both objectives — the proposed public-building group and future traffic requirements —

and such a plan was eventually agreed upon and incorporated in the approved Civic Center Plan. The traffic scheme provides for the separation of certain movements which are now in conflict, including the trans-bay trains. The effectuation of the new traffic plan had previously been assured by funds approved in a bond issue May 8, 1945.

The city bond issue of 1945 also included funds for a Hall of Justice Building amounting to $2,707,000; a Main Library and four branches, $1,763,000; swimming pools, $600,000; playgrounds, $423,000; streets, $4,950,000; storm sewers, $5,311,000; or a total aggregate amount of $15,754,000. The City Council, on March 15, 1945, by resolution, stated that the Main Library and the Hall of Justice should not be located until the Civic Center Plan had been prepared and approved.

Alameda County had already acquired a site for its Hall of Records and the State Legislature had appropriated $250,000 for the acquisition of a site for a State Office Building. The Federal Government, too, was giving serious consideration to the possible erection of an office building in Oakland.

After many studies, citizen meetings, and public hearings, the Planning Commission submitted its proposed plan to the City Council, and on October 17, 1946, the City Council, by resolution, delimited the area of the civic center site. Following approval of the site, work proceeded immediately on the preparation of plans for the location of specific buildings, and on January 16, 1947, the City Council passed a resolution approving the location of the Main Library, the Hall of Justice, the State Building and the Civic Arena Building. On September 25, 1947, after public hearing, the City Council also approved by resolution the entire Civic Center Plan and Report as a unit of the Oakland Master Plan.

The area for the Civic Center is irregular in shape, generally bounded by 13th, Alice, and 10th Streets, including in addition both sides of the lower end of Lake Merritt. Within the Civic Center area nine public buildings already exist: the Auditorium, erected in 1915 at a cost of about $1,000,000; the Alameda County Court House, built in 1935 at a cost of approximately $2,175,000; the Alameda County Justice Court; the United States Post Office; the Exposition Building; the School Administration Building; the Police and Fire Telegraph Building; the State Bureau of Motor Vehicles, and Lincoln School. Six of the existing buildings (all but the last three) are incorporated as integral parts of the comprehensive plan for the future public building group.

Accomplishments to May 1949

In the brief period between the official adoption of the Civic Center Plan in September 1947 and May 1949, much has been accomplished. The earnest desire to give effect to the well-accepted ideas conceived in the plan started a whole chain of events, and as a consequence, the form of the Civic Center is beginning to emerge from the blueprint stage into one of brick and mortar. Considerable land has been purchased, many structures have been removed or demolished, building plans and specifications have been prepared, and construction is now under way. More development is scheduled for the coming year.

Land Acquisition—The problem of assembling blocks of land is not easy when done with the fanfare of publicity which accompanied the public consideration of the Civic Center Plan in Oakland. The city, nevertheless, has acquired two blocks (120,000 square feet)—one for the Main Library and the other for the Hall of Justice Building—and all this without condemnation proceedings, although several cases were filed, but later withdrawn. The cost of acquisition for both blocks totaled $865,000, well within the current appraised values.

The city also acquired a number of properties on the east side of the Civic Center area. These were necessary for the completion of the Twelfth Street Dam thoroughfare project. Parts of these properties were necessary for street widenings and openings and others were essential for Civic Center use. The total area acquired in this vicinity was 83,268 square feet at a cost of $770,000.

All building permits for alteration, addition, or new construction within the area delimited for the Civic Center were subjected to a special review. Thus far relatively few applications have been submitted for consideration. A few minor alterations have been approved in isolated instances. One substantial new structure, covering 20,000 square feet, was projected for a location in the central mall, which under the plan is to be an open space. The matter was presented to the City Council, which decreed that the Civic Center area should be protected and accordingly directed the Street Right-of-Way Agent to initiate steps immediately towards the acquisition of the property in question. Negotiations are now under way for its purchase.

As a result of the above experience, the Planning Commission, at the request of the City Council, prepared estimates of cost for the acquisition of all remaining private property in the Civic Center area. Subsequently the Commission recommended that the City Council initiate a bond issue of approximately $5,000,000 for the immediate purchase of the balance of such property.

The state has already acquired a considerable portion of the block (35,000 square feet) designated for its building

Before and after views of the block which was cleared for the Main Library building in October and November 1948.

and is now negotiating for the remainder of the property.

The County of Alameda extended its holdings within the Civic Center area by the addition of 12,500 square feet of property in areas designated for its use.

Demolition—The entire block for the Main Library building has been cleared of structures, including a substantial three-story building. This was contracted for and completed during the months of October and November 1948.

Plans and Specifications—Plans and specifications for the Main Library building were completed and bids taken on October 1, 1948, following which a contract was awarded for $1,200,000 and the construction was initiated in November of 1948. Final plans and specifications for construction of the Hall of Justice have proceeded and should be completed July 1, 1949. Plans for the construction of the thoroughfare over the Twelfth Street Dam have also proceeded to the point where work can be initiated this year.

Parking Solutions Proposed

Early in the Civic Center studies it was recognized that the provision for off-street parking was of vital importance and every attempt has been made to provide as much parking space as possible. It is contemplated that provision will be made in all future buildings for basement garages like that in the Los Angeles City Hall, which accommodates about 575 cars. Off-street parking at surface level has been suggested in the block south of the proposed City Hall and in the large area south of the Public Assembly and Recreational Group. To render these parking areas less conspicuous, a screen of trees has been suggested that would not interfere with parking, but would make them more attractive than the typical parking lot. The publicly owned land adjacent to the rear of the Recreation Group, treated in this manner, will accommodate several thousand cars serving these places of public assembly.

The Mall which serves as an important feature of the setting for the buildings will readily lend itself to a development of extensive underground parking facilities similar to those being proposed and developed in other communities. Such an underground garage, extending from Fallon to Jackson Streets, would accommodate approximately 1,500 automobiles. It could be entered from both 11th and 12th Streets at several locations, and with corresponding exits would allow convenient and rapid vehicular movement for visitors to the Civic Center.

The Implementation of the Plan

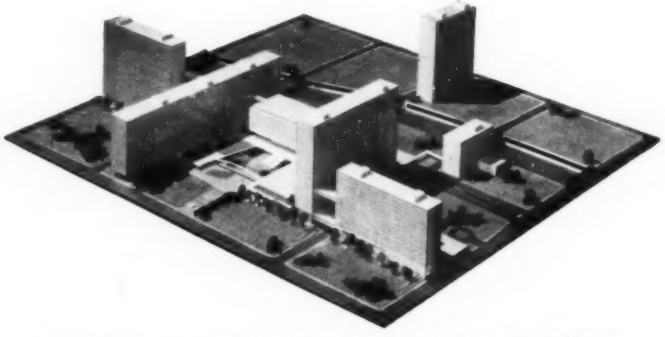
The Civic Center Plan embraces an area of 94.8 acres, of which approximately 28.2 acres are in streets, 47.4 acres in public ownership, and 19.2 are in private ownership. This is regarded as a good-sized area for the needs of Oakland, especially after comparison with civic-center plans of other cities. Noteworthy progress toward the development of a comprehensive civic center has been made in a number of cities, including Los Angeles, San Francisco, Sacramento, Denver, Toledo, and Cleveland. Other communities, too, have made a beginning or have prepared forward-looking plans and programs for such projects. Virtually all cities, however, have encountered serious difficulties in carrying out their public-building schemes, owing to their failure or inability to acquire and control the whole area embraced within their comprehensive plans. Often after public open spaces are provided as part of civic centers, other adjoining private property ultimately needed within the area is pyramided in price, or costly structures are erected thereon which makes subsequent acquisition for the carrying out of the civic center very difficult, if not prohibitive. There are several ways whereby a complete civic-center site might be acquired, but the one below, which Oakland is attempting to follow, is definitely the most desirable.

Direct Purchase

To safeguard the interest of the community against such contingencies, the most direct procedure would be for the city to acquire at the outset all the property embraced within the approved future civic-center site, and then to permit all existing income property to remain in place in those areas not needed immediately for public-building development. Temporary off-street parking might be provided by lease arrangement on the properties which are not occupied by structures. The proceeds from such properties and such uses could be used to pay part or all of the carrying charges, with the assurance that those areas will be protected and available when needed. Precedent for such a farsighted and commendable procedure has already been established in Oakland in the acquisition of rights-of-way for street openings. Similar action is being contemplated in other communities in connection with civic-center development. Such a plan would no doubt require a bond issue of sufficient magnitude to acquire all the properties not now in public ownership. Fortunately, there are no new, unusually large, or costly structures involved in the future civic-center site.

EDITOR'S NOTE: An excellent discussion, "Design in City Centers," by Professor W. C. Holford, is contained in the British *Journal of the Town Planning Institute*, March 1949, pp. 73-86. Published at 18 Ashley Place, London, S. W. 1.

Proposed Chicago Civic Center



Air view of the proposed Chicago Civic Center from the northeast.

INTEREST in a new Civic Center for Chicago has recently been revived as the result of publication of a bold and imaginative plan and report by the Chicago Plan Commission. The site of the new Civic Center, conceived as a unit consolidating many diverse functions of government now scattered in offices throughout the city, is near the center of the Central Business District.

Among the buildings in the proposed Civic Center are the City Hall; County, State, and Federal Buildings; a Board of Education Building, a Consolidated Courts Building, and an Office Building. Although parking accommodations are planned for approximately 3,000 cars, auto and pedestrian traffic are clearly separated, so that pedestrians can circulate safely and freely within the Center. The main buildings would be interconnected at three levels, with the ground level devoted to a landscaped park and to shopping; the plaza to government; and an upper concourse on the 12th floor to restaurants, shops, and related facilities to serve the estimated 30,000 building occupants. Auto traffic and parking would take place under the buildings, so that the park-line atmosphere of the Center is not marred.

The Chicago Plan Commission report proposes designation by City Council ordinance of the area as a site for the Civic Center, and the creation of an appropriate agency with power to promote, plan, and manage the Civic Center.

As Big Companies View Their Civic Responsibilities

A FEW weeks ago the Editor of *The American City* addressed the following letter to the presidents of several large corporations:

President Eugene Holman of the Standard Oil Company (New Jersey), in a recent pamphlet on "The Public Responsibilities of Big Companies," which you have doubtless seen, expresses the opinion that:

". . . a large company especially has a duty to its shareholders to think continually of the general welfare, not only to avoid actions contrary to public interest, but to take positive, constructive actions for the common good."

Many of the municipal officials and local civic leaders who read THE AMERICAN CITY from month to month would be interested, we are sure, in a symposium of brief statements from several industrial leaders as to the extent to which they are concerning themselves with the betterment of the communities in which their plants or sales offices are located.

In the case of your own company, may we have a letter stating whether such public service is evidenced by:

(a) membership on boards of directors of local organizations, such as chambers of commerce, welfare associations, or citizens' councils?

(b) financial contributions to such local organizations?

Also, does your company encourage its representatives to accept appointment on local official boards, such as city planning commissions or boards of education?

Has your company adopted any definite policy as to decentralization—locating new plants in small cities instead of expanding existing plants in large cities?

A statement from you or from your public-relations department in answer to these questions would be greatly appreciated.

Here (in alphabetical order) are the first eight replies received:

ALUMINUM COMPANY OF AMERICA, *Pittsburgh, Pa.—Roy A. Hunt, President:*

We recognize the importance of public service in the various communities in which we have operations and we approve membership on boards of directors of such organizations as chamber of commerce, welfare associations, etc., by company executives in these various locations. We also make financial contributions to such local organizations.

Frequently, company people are asked to serve on boards of education and similar groups and, in most such cases where they are asked to do so, we have been quite willing that they serve.

Regarding decentralization, we have within the past two years located new plants in smaller cities.

CHAMPION SPARK PLUG COMPANY, *Toledo, Ohio—J. R. McGeorge, Advertising Department:*

Here is a summary of civic activities of Champion people:

R. A. Stranahan, president, is a past president of the Toledo Chamber of Commerce and for many years has been active in civic affairs. He has served as chairman of several Community Chest drives, has headed the Toledo Aquarama Festival Committee and now acts as an advisor to this event, which brings considerable attention to Toledo every year.

He is a member of the Glass Bowl Civic Association's board of directors, which sponsors the annual Glass Bowl football game in Toledo every fall, and was the originator of the Banquet of Champions, an outstanding contribution to Toledo's civic program last December.

Both Mr. Stranahan and his brother, F. D. Stranahan, treasurer, are heavy contributors to Toledo's cultural and welfare programs, and are interested in having other executives and personages in the Champion Spark Plug Company take an interest in civic affairs.

R. A. Stranahan, Jr., vice-president, is a member of the board of the Chamber of Commerce. Duane Stranahan, vice-president, is chairman of the Toledo Aviation Commission, and James F. Lewis, vice-president, recently was chairman of the March of Dimes campaign, which broke all previous records in contributions. At present, Mr. Lewis is vice-president of the Toledo Aquarama festival.

M. C. Dewitt, vice-president, organized the Toledo Community Advertising committee and served as its chairman until recently.

J. R. McGeorge, of the advertising department, is secretary of the Toledo Zoological Society, has just completed his second year as chairman of the speakers' bureau of the American Red Cross Fund Campaign, and is a member of a scholarship committee for the University of Toledo.

CONTINENTAL CAN COMPANY INC., *New York, N. Y.—J. E. Niederhauser, Vice-President, Industrial Relations:*

The operations of Continental Can Company are highly decentralized, with plants located in approximately sixty cities, many of them fairly small communities. Local plant managers and their staffs are active on boards of directors of many local organizations and the company contributes to such recognized local organizations.

E. I. DU PONT DE NEMOURS & COMPANY, *Wilmington, Del.—Glenn Perry, Assistant Director, Public Relations Department:*

The du Pont Company believes very firmly that it is a prime duty of any company to play the part of a good citizen and interested member of the community in any town in which it is located. We have 80 plants in 25 states, and I think I can say that this feeling motivates the actions of the management of each one.

While there is no definitely stated policy on the matter, du Pont people in these various plant communities are encouraged to take part in such activities as the chamber of commerce and welfare associations. I have no statistics showing the extent to which this is done, but since du Pont employees uniformly are substantial citizens of their community, I am confident that they take a positive role in this direction.

As to financial contributions to local organizations, this is frequently done. I might differentiate here between such payments as dues for membership in civic associations, and charitable contributions. As to the former, the company and its employees, of course, do their part. As to contributions, you understand, I am sure, that incorporated companies, with their responsibility to their stockholders, can contribute only to organizations which have a direct bearing on the health or welfare of their employees. This means that many times we are unable to contribute to causes that we know to be good. In cases where we are permitted to contribute, this is generally done on a local basis, with a plant gauging its donation by its relative size in the community.

GENERAL MILLS, INC., *Minneapolis 1, Minn.—Abbott Washburn, Manager, Department of Public Services:*

It is very definitely our policy to be a good corporate citizen in the communities where we operate plants and offices and to

encourage our personnel, wherever possible, to be active in civic affairs and discharge their responsibilities as members of the community.

In many cases our plant-management people are among the leaders in local organizations. For example, Mr. James S. Hargett, vice-president of General Mills in charge of our Southwestern Division activities with headquarters in Oklahoma City, has served for some years as president of the very active Oklahoma City Chamber of Commerce. Mr. James J. Selvage, vice-president in charge of the Southeastern Division, has been very active in civic affairs in Atlanta, Ga. Mr. Wallace Calvert is very active and very well known throughout Tennessee. He is in charge of our milling operations in Johnson City. Our people in San Francisco have also been very active and, of course, here in Minneapolis, Mr. James F. Bell, founder of General Mills; Mr. Harry A. Bullis, chairman of the board; Mr. L. N. Perrin, president, and Mr. S. C. Gale, vice-president, as well as other officers, have all been leaders in various local campaigns and projects.

We encourage our people at all levels to take an active part in the life of the community. Recently, through our company publication, we offered copies of the American Heritage Foundation's publication, *Good Citizenship*, to all company employees. Many hundreds were requested and have been sent out.

Also, it is the policy of General Mills to contribute to the Community Fund, Red Cross, service organizations, etc., in the communities where the company operates plants. The size of the contribution is geared to the number of people employed at each location.

As to decentralization, we have no set policy *per se*. However, during and since the war, we have made a number of moves into smaller communities.

JOHNSON & JOHNSON, *New Brunswick, N. J.—George F. Smith, President:*

We have long recognized that one of our major responsibilities, as a business enterprise, is to the communities in which we live. The constructive discharge of that responsibility receives the continuing attention of our management.

We see this duty not only as one discharged by active participation in government, in school activities, and in charitable enterprises, or in financial support of any community project which will contribute to the common good; we think that, in addition, we owe the community and its citizens an opportunity to keep informed of our activities, our policies, and our objectives insofar as they may affect the community. We give much attention to this aspect of community relations.

As our business has expanded, we have turned to the smaller community for new plant locations. In the last ten years alone we have constructed eight new plants in smaller communities. This decentralization program has made clear that our business derives many benefits from the community. It, therefore, has made even more clear our continuing obligation to the community and its citizens.

THE PURE OIL COMPANY, *Chicago, Ill.—Rawleigh Warner, Chairman of the Board:*

Our policy for many years has been one of decentralization. Each one of our five refineries where we have our largest concentration of labor is either adjacent to or in a small city.

Our managers and field men generally in all divisions of our business are encouraged to accept appointment on such local boards as those of city planning, education, etc.—governed, of course, by the time they may have available as well as their aptitude and interest in such work.

Financial contributions to local organizations are made from funds allocated for such purpose to the local division. Of course, in some instances where there is great need, on the recommendation of our local people, the general office may make a direct contribution for the corporation.

SHELL OIL COMPANY INC., *New York, N. Y.—H. L. Curtis, Assistant to the President:*

The passage you quote from Mr. Holman's pamphlet on the public responsibility of big companies summarizes quite accurately the view we have always taken of our role as a conscientious member of each community in which we operate and of our responsibility to the public generally. In the broader realm of public interest, we support nation-wide activities both by making financial contributions and by enabling our executives to accept administrative posts. At the local level, and particularly in areas around plants and sales offices, the impact of our effort in behalf of the public good is, perhaps, even more strongly felt.

There is probably no way in which Shell's interest in public service is more clearly shown than in the participation of Shell employees in the affairs of their own communities. In a number of publications expressing company policy, employees are encouraged to accept civic responsibilities, and at present there are few, if any, communities in which Shell has a major concentration of employees that does not have Shell people in local government, in the chamber of commerce, on the school board, on committees for charitable drives, in Parent Teacher Associations, in Boy Scouts, and in Junior Achievement or service clubs. Aside from participation by individual employees, Shell aids in the financial support of many such organizations, locally and nationally.

Decentralization has been characteristic of the oil industry for many years; but it is less a matter of policy than of operating requirements. Largely because of the nature of our business, we have already located most of our major installations in small cities and so do not contemplate any further decentralization.

State-Wide Building Code for New York

DECLARING that at last New York State is on the way to getting a state-wide building code that will clear away the "roadblocks" to housing, Governor Thomas E. Dewey, in a radio report in May, outlined the provisions of a bill enacted by the Legislature which will set up a commission to draft and promulgate such a code.

Most of the building codes in the state, Governor Dewey said, are from 10 to 30 years out of date.

His report continued: "The Legislature, after full debate, authorized the preparation of a simple, basic, statewide code, permitting the use of every modern material, of new developments in steel, in plywood, of every new technique in the building of homes. The code will be available to every community, but it's not going to be forced on any. . . . The experts believe this code alone should bring down the cost of housing by as much as 10%."

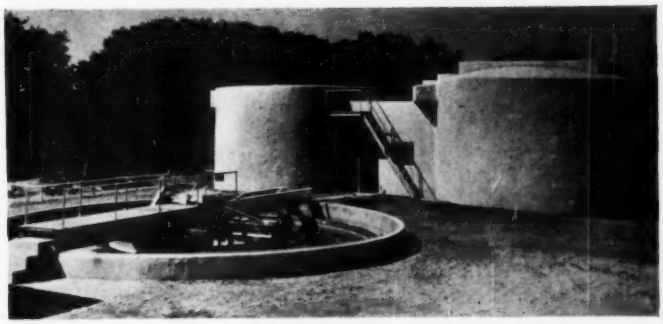
The commission which will draft the code is ordered by the law to formulate its standards and requirements, so far as practical, in terms of "performance objectives." The law gives the commission power to set up material-testing laboratories and to make other arrangements to establish that new materials meet performance tests before they can be used.

The state-wide building code will become final after hearings, without further legislative action. Any locality may exempt itself from any part of the code, or the whole thereof, by giving notice to that effect within thirty days after the notice of hearing is given. If the locality does not so exempt itself, it is permanently bound, but if it exercises its option, it can later subject itself to the code. Any builder would have the option in drafting plans and proceeding with construction to comply with either the local or the state code.

An appropriation of $300,000 to finance the operation of the appointed five-member salaried commission during its first year in office is provided in the law.

Governor Dewey, in his address, also pointed out that New York as a state is probably doing more in the realm of public housing than all the other states in the union put together. He said: "The program is now working all over the state, clearing slums and building low-rent housing. On top of the $435,000,000 program already in action, the Legislature this year, on my recommendation, voted to increase that amount by another $300,000,000. If the people approve it at the polls next November, our total for public housing will be $735,000,000."

Paints for the Sewage Plant



Clarifiers, aeration tanks, pipelines, digesters—all deserve individual study to meet painting needs. The plant shown above is serving Carmel, Calif.

SETTLING tanks and aeration tanks should be painted approximately 1½ feet above and below the water level. The paint should be a two-coat application of a waterproof, chemical-resistant, plasticized black coal-tar pitch enamel or a thixotropic coal-tar coating for application at atmospheric temperatures in substantial thickness. A coating so applied will provide protection against greases and oils that rise to the surface. If the sewage contains any quantity of packing house or dairy wastes, a vinylite resin base paint probably should be substituted.

Pipeline above ground should have a two-coat application of refined, chemically resistant waterproof plasticized coal-tar pitch enamel applied over either a coal-tar primer or a high-grade red lead and zinc chromatic primer as the first priming coat, followed by the coal-tar primer.

Another method is to clean the pipe to parent metal, then apply two or three coats of heavy coal-tar coating to a thickness of approximately 3/64", allowing 24 hours between coats.

If pipelines must be identified by color, a Parlon base or Bakelite base enamel should be used in place of the coal-tar pitch enamel. These will remain color-fast, unaffected by hydrogen sulphide gas.

If it is necessary to cover a bituminous coating with a non-bituminous, such as oil or synthetic resin, one must guard against "bleeding through." One can prevent this by covering the bituminous paint with an aluminum coating. This will be effective with either Bakelite or oil paints but is unreliable with a Parlon base paint.

If the plan is to paint over a pipe with an existing coat of paint in place, a small patch should be tested to see that synthetic-type paint will not react unfavorably with the present coat. The lifting and curling action, if it does appear, will occur shortly, generally in a matter of not more than a few minutes.

Pipelines below ground —Underground pipe should be cleaned, primed, and protected with 3/32" of dielectric coal-tar enamel applied hot to which is bonded 15# coal-tar saturated asbestos pipeline felt.

Clarifier mechanisms should be especially treated to prevent corrosive action natural to mechanisms operating in raw sewage. This can be done by first cleaning the metal to a bright finish by wire brushing or sand blasting. On these bare metal surfaces, place a chemical-inhibiting acid wash containing phosphoric acid. This converts the metal surface into a non-metallic phosphate film, isolating the metal film, from the primer applied later.

The phosphoric acid of the concentrations used does not harm the skin, and is easily removed by soap and water. Nevertheless, when applying it, one should wear goggles and gloves.

When the surfaces are dry, a primer should be applied, consisting of a high-grade red lead or zinc chromate rust inhibitive primer, a coal-tar primer and 3/32-inch thickness of highly refined coal-tar pitch enamel. The enamel should incorporate a plasticizer for flexibility in the coating.

An additional method is to clean the metal, apply a highly refined heavy coal-tar pitch base primer, and then brush on hot enamel with Tampico fiber daubers to a thickness of 3/32-inch minimum, or at the approximate rate of one pound of the coal-tar pitch enamel per square foot of surface.

Walkways and railings should be protected by the application of a primer and two coats of a Parlon-base or a phenol-formaldehyde Bakelite base enamel.

Digesters should be protected on the inside by a refined, coal-tar pitch coating applied on the sidewall surfaces. The sidewalls may be sealed by a coal-tar pitch base primer, and over it three coats of heavy coal-tar coats of approximately 1/64-inch thickness at atmospheric temperature. This will render the wall watertight, gasproof, and probably will inhibit structural damage by freezing and thawing. Sludge, like water, has a tendency to leach out the soluble lime in concrete, thus encouraging the absorption of moisture as porosity sets up.

To protect floating covers to the digesters, use a high-grade red-lead or zinc chromate rust-inhibitive primer; follow this with two coats of a heavy bituminous paint that incorporates a plasticizer for flexibility. If you desire color, finish off the upper inside of the rim, topside of the ceiling, trusses and purlins with a chlorinated rubber base product in the color selected.

Motors, pumps and miscellaneous metal surfaces should be well protected by an alkyd resin. These proved themselves during the war on shipboard for all portions of the vessels above the water line. The alkyd enamels dry overnight, and display unusual color retention and gloss even after prolonged outside exposure. They resist temperatures as high as 350° F. They also resist gasoline lubricants and other oils. A Parlon base enamel is equally effective.

Buildings are often subjected to dampness, and frequently to hydrogen sulphide gas. For lasting protection paint them with a chlorinated rubber base paint coating. These are waterproof, resistant to chemicals, and unaffected by hydrogen sulphide gas. They are supplied in a wide range of colors, and are applied easily by brush or spray.

The material in this article results from helpful information supplied by the following companies: The Barrett Div., Allied Chemical & Dye Corporation; E. I. duPont de Nemours & Company; Inertol Company, Incorporated, and Vita-Var Corporation.

Are You Satisfied With Your City's Uniforms?

These illustrations show two uniforms of fabrics made by Metcalf Bros. & Co.

A Reeves Poplin shirt by Conqueror, made by Julius Leventhal & Bros., Inc.

FOR MORE than a lifetime a great state has been asking for bids on 100% full-blood wool. Actually, the expression doesn't mean anything. What presumably is wanted is 62 grade, but even that is not sufficient to determine either the fabric or the quality. What is more, the request for prices is usually made, also, to a large woolen manufacturer from whom they never purchase and who doesn't expect they will. Three bids are necessary and he usually obliges with what passes for a bid.

A representative of a woolen manufacturer called on the purchasing officer of the police department of a big city, and was told to see the commissioner of another department who also bought uniforms for two other city departments and was connected with a uniform-manufacturing concern. Could this woolen manufacturer make a 14-ounce serge? The city used thousands of yards per season. Would the manufacturer give the commissioner 35 cents a yard in place of the 30 cents being donated by the present supplier? Even after the commissioner's supplier went out of business, the other manufacturer did not get the city's business because he "didn't show sufficient interest."

The transit workers' union in a city owning its transportation system telephoned a woolen manufacturer in New York to ask if cadet gabardine was a good material for uniforms, as they had some of it available. A representative of the manufacturer took a plane to the distant city to look at the material which had been offered. It looked streaky to him, and he so reported to the union. Nevertheless, the union accepted it.

Whatever else these three situations suggest, they don't indicate much concern over quality or, indeed, price. As a matter of fact, only a few cities, counties or states possess within their departments the knowledge required to obtain quality except through faith in the reputation of manufacturers. The manufacturers themselves do not claim this method to be "sanforized."

There is no uniform method of buying uniforms. There should be but there isn't, even in the largest cities. In St. Louis, department stores bid on the Police Department contracts. To make the bid the store must obtain prices from large uniform manufacturers. The store handles the contract on a low markup expecting its reward from having a couple of thousand policemen, often with their wives, come to the store for fittings, etc. In the department-store trade this is known as a "traffic get-up."

Philadelphia invites the uniform manufacturers to bid on the whole Police Department contract.

New York City buys the cloth, at present from the American Woolen Company, and the policemen have their uniforms made up as required by their superior officers by any of 20 or more distributors. The cloths are as follows: dress blouse, 20-ounce woolen dress cloth; summer uniform, 2-ply worsted serge, 14-15 ounce; winter overcoat, fine beaver woolen, 30-ounce. Shirts for the mounted and motorcycle officers are of blue tropical worsted, 9-ounce; for other officers dark-blue cotton poplin.

A uniform is very different from a suit of civilian clothes. The man who wears it buys it as a tool, because he must have it in order to work. He buys it because his old one is worn out and he has been ordered to replace it. Uniforms are of better quality than civilian suits of comparable price. A $50 civilian suit costs the retailer $37.50 and it cost the wholesaler $28. A $50 uniform represents a direct cost of $37 compared with $28 for the civilian suit. The relatively low price is largely due to the competition. The quality is indicated by the fact that the average New York policeman wears his overcoat seven years.

Important as it is to have the uniforms made in conformity to the city's requirements, the biggest value in uniforms is wear. The factors that make for wear are grade of wool, number of ends and picks (the number of threads running each way), and the general care with which the goods are made. Ninety-five per cent of the suiting weights are worsteds, woven of wool yarns of 2-ply or more. The other 5% are high-grade broadcloths.

The large cities frequently have their own specifications. Those of New York are very good and are widely used by adjacent municipalities. What should the town or small city do to feel confident it will always obtain quality goods? It can use the ready-made specifications of a large city, or of the Army, Navy, Marine Corps, or Air Force. Or it can develop its own requirements. The way to do this is, not to tell the mills how to make the cloth, but to tell the mills what the service will be. The police chief, city clerk, city manager, or purchasing agent says, "we have 32 police officers; they are on the street all day; the temperature ranges a to b degrees in winter and c to d degrees in summer; send us a sample of what you can offer for this service."

The half-dozen samples received by the purchasing official are sent to a commercial laboratory with a request for a report on tensile strength and color-fastness. Having selected the cloth, the purchasing officer sits down with a representative of a uniform house and together they draw up the specifications for the uniform itself—goods, lining, canvas, buttons, etc.

Base the specifications on performance and the style wanted. Send copies of these specifications to leading uniform manufacturers. Place your order, not only on price, but retain the right to take into consideration such other factors as the experience in making the particular type of uniform required, reputation as to service and delivery, and general standing in the community of uniform manufacturers, such as membership in the National Association of Uniform Manufacturers.

Uniforms are a very important factor in municipal government. The meter reader in uniform is instantly recognized and commands confidence. Uniformed municipal employees include not only the policemen and the firemen, but also sanitation men, transit drivers, and certain employees at parks, airports, and museums. Working out a sound method for outfitting these employees properly is a worth-while project.

Some Important Sources Of Uniform Fabrics

WORSTED MILLS

American Woolen Co., Inc.
225 Fourth Ave., New York, N. Y.

Cleveland Worsted Mills Co.
6114 Broadway, Cleveland, Ohio.

Metcalf Bros. & Co.
45 East 17th St., New York, N. Y.

J. P. Stevens & Co.
350 Fifth Ave., New York, N. Y.

Clinton Woolen Mfg. Co.
Clinton, Mich.

Parker & Kemp, Sales Agents
257 Fourth Ave., New York, N. Y.

William Whitman Co., Inc.
261 Fifth Ave., New York, N. Y.

COTTON MILLS

Galey & Lord, Inc.
57 Worth St., New York, N Y.

Reeves Brothers, Inc.
54 Worth St., New York, N. Y.

J. P. Stevens Co.
44 Leonard St., New York, N. Y.

William Whitman Co., Inc.
40 Worth St., New York, N. Y.

Some Representative Uniform Manufacturers

Craddock Uniforms,
Kansas City, Mo.

A. DuBois & Son, Inc.
17 Union Square, New York, N. Y.

Sigmund Eisner Co.
261 Fifth Ave., New York, N. Y.

The Fechheimer Bros. Co.
400 Pike St., Cincinnati, Ohio

Jeff Goldstein, Inc.
387 Fourth Ave., New York, N. Y.

Hart Mfg. Co.
Columbus, Ohio

Philadelphia Uniform Co., Inc.
Conshohocken, Pa.

Caleb V. Smith & Son
300 Fourth Ave., New York, N. Y.

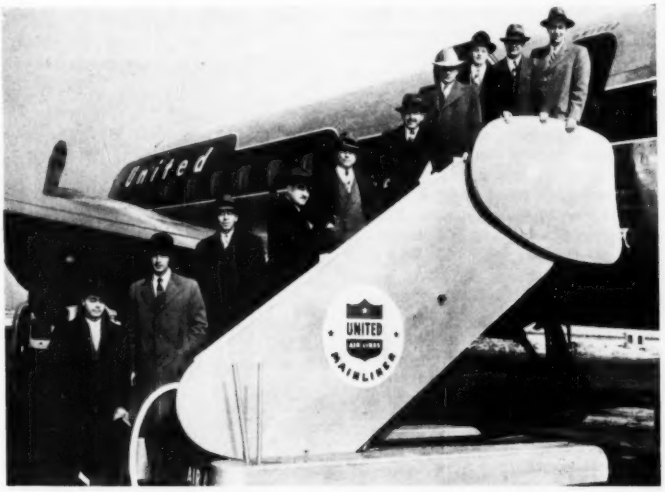
Hirsch Tyler Co.
10th and Berk Sts., Philadelphia, Pa.

Weintraub Bro. & Co.
1821 Noble St., Philadelphia, Pa.

New York Officials See Philadelphia Airport Drains

WESTCHESTER, Nassau, and Queens County Engineers and public officials were flown from LaGuardia Airport to see an on-the-spot demonstration of a new drainage system at the Philadelphia Airport; officials of the Universal Concrete Pipe Company conducted the tour.

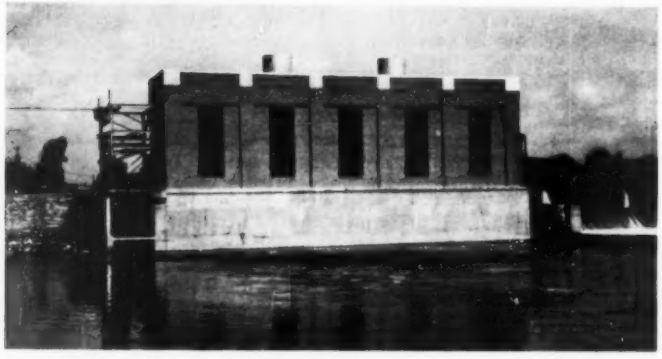
Excess water is eliminated from the airstrip grounds by rubber-coupled concrete pipe, designed to prevent cracking and buckling of the surface. The advantage of the water-tight, flexible rubber coupling over a cement-mortar coupling is that there is less possibility that the coupling will develop a seepage that might prove hazardous to the pavement above the draining system, according to one of Universal's officers.



Left to right, Erick Andrews, Chief Engineer and assistant to the Public Works Director, White Plains, N. Y.; Tom Ray, New Rochelle Chief Engineer; H. Sherman, Chief Engineer and assistant to Public Works Director of Nassau County; Leo Kampf, Chief Engineer; Karl Vopel, Engineer in charge of design; Martin Nelson, Chief Engineer of design and construction of sewers, all of the Borough of Queens, and William Raisch, Consulting Engineer of Queens' borough president's office; Universal officials Elmer Leuliette, William Keller, and Thomas Monaghan.

Kaukauna Develops Hydroelectric Resources

By H. F. WECKWERTH
Manager
Electrical and Water Departments
Kaukauna, Wis.



Here is the way the Little Chute plant looks from the river.

THE rapid rushing waters of the Fox River through Kaukauna, Wis. (population 6,581, 1940 census), gave the name "The Lion of the Fox" to the city. The swift flow of the Fox River, too, made hydroelectric power the natural choice for power plants in the Kaukauna area. Within the city there is a fall of 50 feet which represents 30% of the total fall of the lower Fox River.

Water power was always important to the local industries. Before the turn of the century many mills located in the area were using the Fox for mechanical power, although they were utilizing relatively inefficient power equipment. Those interested in hydraulic power generation saw the benefit of consolidating it under one head. This objective was obtained in 1945. By the proper development and use of all water power in the city, the water now produces three times the power under efficient operating conditions that it did 20 years ago.

The lower Fox River Valley is noted for its many fine paper and pulp mills, giving work, directly and indirectly, to thousands of people. The city furnishes large blocks of power to these industries.

Municipal Ownership Suggested

In 1912, the Green Bay & Mississippi Canal Company owned a hydroelectric plant in Kaukauna which was not being used. At about this time the city came to the realization that a new municipal plant would be required. As a result, the city officials negotiated with the Canal Company and obtained a lease for part of the plant output on a year-to-year basis. With demand increasing annually, however, the city finally needed the entire output and leased the plant on a ten-year basis beginning in 1921.

Load again began to exceed demand and the Canal Company built another plant of 2,400-kilowatt capacity. This second plant, the Rapide Croche, was turned over to the city in 1926, but by that time the city found that it had outgrown even the combined output of the two plants, and the Canal Company built a third plant. This plant, the New Badger, was turned over to the city in 1928 and added 3,600 kilowatts to the total capacity.

Then, over the years, demand again began to approach output and a city-owned hydro plant was envisioned. This plan took shape and the first city-owned plant was designed and built in 1940-42. This plant, the Kaukauna, provided two generating units and added 4,800 kilowatts to capacity.

With the unprecedented demand that followed the end of the war the city again was confronted with the problem of adding new capacity. The seemingly inexhaustible Fox provided the solution and the Little Chute plant, the

Workmen pose on one of the S. Morgan Smith adjustable turbines which are in the process of being installed.

fifth, was built by the city in 1948. This plant contained three generating units and provided 3,300 kilowatts more capacity for the system.

Both generating units in the Kaukauna plant and one of the three in the Little Chute plant use S. Morgan Smith automatic, adjustable propellor-type turbines. This type adjusts itself automatically to change in load and water conditions and has a high efficiency over a wide range of gate openings. From 30 to 100% load, with head variations from 1 to 14½ feet, efficiencies range from 78½ to 88.8%.

The other units are the S. Morgan Smith manually adjustable type of turbine. These also have high efficiency but must be shut down when the blade angle is changed.

Interior view of the Kaukauna City plant (1940-1942). These two generators, manufactured by the Electric Machinery Manufacturing Company, are similar to the three installed in the Little Chute which were completed in 1948.

Direct-Connected Generators

The generators are Electric Machinery vertical type, and are specially designed for medium and small water-wheel installations to give maximum efficiency and compactness. They are direct-connected to the water-wheel and employ self-contained thrust bearings. The thrust bearings on the generators in the Little Chute plant are self-cooled, thus eliminating the necessity of using water from the river or from deep wells for cooling purposes. This saved considerable installation cost and, highly desirable in a completely automatic plant with no operators, also removed one of the operating hazards usually present in such a plant. The generators are built to withstand high over-speeds in case of sudden cessation of load along with non-operation of automatic gate controls. Temperature detectors on the bearings and in the armature coils take the machine out of service in case of excessive temperatures. Three of the five plants are totally automatic and have no full-time operators. The output voltage of the generators is 2,400 volts at three-phase.

Three Capacitators Used

The Little Chute plant uses three General Electric 2,400-volt capacitators and Thyrite lightning arrestors for surge and lightning protection of the main generator windings.

The head at Plants One, Three, and Four is 23 feet; at Plant Five it is 13 feet; and at Plant Two, 8½ feet. The total drainage area of the Fox River above the plants is 6,150 square miles. The plants use Leitelt Iron Works headgate hoists. They can lift 7 tons at a speed of 1.29 feet per minute.

Three Type OISC Pennsylvania power transformers are used to send the power to distribution. These are 12,000-kva, 12,000 to 2,400 volts, single-phase 60-cycle units. The supervisory control equipment furnished by the General Electric Company is the code-selector type arranged to start and stop any unit, raise or lower load, raise or lower voltage, give kilowatt indications, a.c. ampere indication on each individual unit, and also indicate water level. This, together with unit indication (on or off), is accomplished over one pair of wires.

The plant also has three General Electric oil circuit breakers, of 600 amperes and 15,000 volts, and three Woodward governors.

The total capacity of the plants is 19,375 kva at 15,000 kilowatts with 22,030 hp of turbine capacity. The net generation for 1948 was 77.5 million kw-hrs., which represents 84% of the total power furnished to its 5,400 customers and 65 miles of farm lines. The balance was purchased from a neighboring utility. The estimate for 1949 is a total generation of 100 million kw-hrs.

The revenue from electric sales for 1948 was $712,400, with net operating income of $113,500.

Since its early operation, the Kaukauna utility has greatly reduced the cost of its power to its customers. In 1915, for residential use, the cost of 100 kw-hrs. was $8.55. In 1925 this was reduced to $5.22. Reductions followed every two or three years, until in 1949 the rates are $2.50 per 100 kw-hrs., lower than any other community in the state in the 5,000 to 10,000 population classification. The average use per residential customer for 1948 was 3,400 kw-hrs., which is the highest and about double the average use for the service in Wisconsin.

New York's "Take" From Transit System Advertising and Vending

THE Board of Transportation of the City of New York reported on April 1 that for the eight months ended February 28, 1949, car-card and poster advertising privileges in the stations, trains, and surface vehicles of the New York City Transit System brought in $1,880,103.45 as the city's share of the business. Vending paid the city $936,167.57 during the same period. Vending includes newsstands, scales, bootblack and flower stands, candy, gum and cracker machines, parcel lockers, luncheonettes, telephones, soft-drink machines, and pay toilets.

SYRACUSE, N. Y.

This is how the cement-lining machine looks inside the pipe.

New Conduit Lined Inside and Out

Extension to Skaneateles conduit system receives cement lining to protect steel pipe and to effect economies

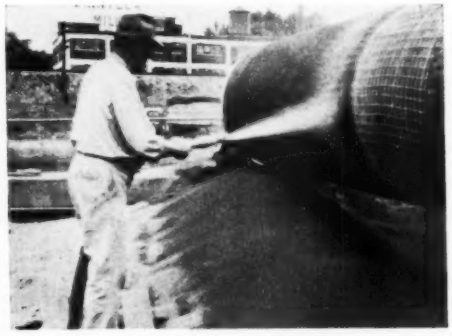
By NELSON PITTS
City Engineer
Syracuse, N. Y.

IN ORDER to complete the fifth section of our new Skaneateles conduit system, our Water Division had to vary its construction procedure to some extent. This section, involving 5,400 lineal feet of 49-inch o.d. steel pipe, is protected inside and out with a cement lining, the exterior by gunite, and the interior by centrifugally applied mortar.

Early in 1947, the Water Division awarded a contract to the Bethlehem Steel Company for this pipe and the required specials. We found it necessary to make this early contract in order to insure delivery by the summer season of 1948. The first pipe on this contract was received early in July of last year.

The pipe was furnished in 30-foot lengths and has a wall thickness of 5/16 inch. For this section we decided to protect the outside of the pipe with approximately 1 inch of gunite and the inside with a cement mortar lining. This decision was made for several reasons. In the first place, it was deemed necessary to wrap the pipe if a tar coating were used, as the conduit was to be installed in a soil containing

Fittings also were protected with gunite.



Nozzleman applies gunite to a 49-inch pipe length.

Typical view of the gunite-protected line in place with the joints being encased with mortar.

rock. A comparison of the estimate of cost of coal-tar lining and coating with external wrapping with an application of 1-inch gunite externally and 3/16 inch mortar inside the pipe indicated a saving in favor of the latter method. Moreover, the application of gunite provided structural strength which allowed the use of a thinner wall thickness than would otherwise have been possible. Finally, it was felt that a lining and coating composed of cement and sand provided the greatest assurance of longer life, against other materials which might be considered for the same purpose.

The gunite work was performed by the forces of the Water Division, as its personnel has had wide experience in the use of gunite. The division also had a shop yard equipped with a crane which greatly facilitated this work. All of the pipe and specials were completed by the middle of October.

The actual work of installing Section 5 of the conduit system followed directly the completion of Section 4. Immediately upon its completion, men and equipment were transferred to the new site. A 1½-yard dragline, rented on contract, was used for trench excavation. The city-owned 1¼-yard shovel and Allis Chalmers bulldozer were used for pipe laying and backfilling the trench. Each length of pipe is connected with Dresser couplings. These are encased in mortar cast in a special form.

Jointless Surface

The interior lining of the pipe was placed by special contract with the Centriline Corporation, New York City. The lining was placed after the pipe was in the ground and backfill completed. Its continuous application of mortar by the centrifugal process insures a strong, jointless pipe coating.

With Section 5 of the conduit system complete and in operation, the system will then be able to deliver about 52 million gallons per day, with some margin of safety over the all-time high in water use noted in 1947, of 50,500,000 gallons per day over a 5-day period.

High-Bid Award Upheld For Arlington, Va., Incinerator

IN A significant decision, the Supreme Court of Appeals of Virginia upheld the right of Arlington County, a suburb of Washington, D. C., to select a bid of an incinerator firm whose bid was above that of the lowest bidder.

The suit centered around an award made by the county in June of last year for a 300-ton incinerator whose design was based on plans and specifications prepared by Alexander Potter Associates of New York City. Four bids were received; two on the hand-stoked type, and two on the mechanically stoked design covered by equipment patents. The case revolved around these latter two bids. One was for $646,757 from an incinerator concern with many successful installations now in use. Another came from another firm whose bid was $18,000 less. This firm's list of applications was smaller.

The consulting engineers, after a study of the bids and an evaluation of the proposals, the experience of the contractors, and the guaranteed operating costs, recommended that the bid be awarded to the firm with the higher bid. Thereupon the other firm, joining with several taxpayers, petitioned the Circuit Court for a writ of mandamus which sought to compel the County Board to reverse its decision. The petition alleged that the engineer's method of evaluation was arbitrary and factually erroneous. The petition later was amended to supply the charge of fraud. The Circuit Court dismissed the charges and the Supreme Court of Virginia has now upheld the Circuit Court decision.

On the subject of competitive bidding, the Court held that the county made its award fairly and in good faith. The appellants contended that there could not be effective bidding because the specifications described a stoking unit made and patented by the successful bidder, without provision for making the unit available to any other bidder. The Court held, however, that the specifications allowed the hand-stoked type to compete against the patented type. It also stated that the county had a clear right to purchase the patented type if its best interests were so served.

The Court also pointed out that when the bids were advertised, the first installation of a stoker-type incinerator by the unsuccessful bidder had been in service only a few months. The engineer felt that this short time did not give the county adequate time to judge performance.

The Court further upheld the right of the county to evaluate the bid on the basis of the worth of operating costs over a 20-year period, the term of the bond issue. The contention that the Consulting Engineer was guilty of practical, or at least constructive fraud in so basing his recommendation was completely rejected by the Court.

Cincinnati and

How this new topographic survey

Slotted templets provide at least nine precise points in each of more than 1,000 pictures which comprise the mapping of Cincinnati and Hamilton County.

By H. H. KRANZ
City Engineer
Cincinnati, Ohio

THE new topographic survey of the City of Cincinnati and of Hamilton County, Ohio, is well under way. The work will continue for several years until the total of 414 square miles has been mapped on a series of 610 map sheets. The over-all cost of the project, amounting to $1,112,200, is being financed jointly by Cincinnati and Hamilton County on a five-year basis. Supervision of all operations and contracts and the establishment of the secondary and photo-control network are the responsibility of the City Engineering Division.

The first-order horizontal and vertical control lines, constituting the basic net to which all mapping control is integrated, were established by the U. S. Coast and Geodetic Survey in 1947, with the cooperation of the City. Fairchild Aerial Surveys, Inc., of Los Angeles and New York, has been retained as the consultant for all aerial photography and the development of topographic and photomap sheets by photogrammetry.

Plane-Table Work Discarded

Early in 1948, when the mapping project was first conceived, some consideration was given to the use of the plane table to obtain the topography. However, after a review of comparative costs, this method was quickly rejected in favor of the much greater economy and speed of the photogrammetric process and to avoid unduly expanding the city engineering staff. Consequently, upon completion of the first order network, an agreement was entered into with Fairchild Aerial Surveys, Inc., during April of 1948, to photograph the entire city-county area and to develop the topography and scaled photomaps on a specified area by photogrammetry.

How Details Were Planned

The technical methods and coordination were worked out between the city and the consultant. The city handled all negotiations representing both the city and the county. Following completion of the primary net by the U. S. Coast and Geodetic Survey, the work started with a conventional job of aerial photography. The entire county was photographed twice, once with a camera suitable for the construction of the precision *contour map*, from an elevation of 6,250 feet above the ground. The second complete mapping of the county was done with a special camera of very long focal length (24-inch), and was flown from a height of 25,000 feet, and from these pictures the *photomaps* desired by the city were constructed.

The city decided that maps of the county at a scale of 1 inch to 200 feet, with 5-foot contours, made up in quadrangle sheets of 4,000 feet north and south by 5,500 feet east and west, and a set of photomaps at exactly the same scale, divided into identical sheets, would best serve the community needs. With these maps it will be possible to study every acre of the county in complete detail by placing the topographic map and the photomap side by side.

Ground Control Network

The compilation of these maps involves the establishment of a network of control by ground-survey methods. In gently rolling country such as Hamilton County, this control is most effectively established by running traverses and lines of levels.

This control work is being performed by special crews of the City Engineering Division. During the first several months of this operation, a coordinator was supplied by the consultant who worked with the survey parties and selected in the field the so-called "picture points" or photo-control points, such as the intersection of crosswalks or oil streaks or small graded or weed patches which are recognizable on the ground and visible on the photographic prints as sharply defined points. These points are then coordinated to the map network by city crews and their computed position forwarded to Fairchild.

Stereoscopic Topographic Details

The making of the topographic map follows the aerial photography and the completion of the field control. It is accomplished by placing the photographs in a very complex and remarkable machine, by which the pictures are viewed stereoscopically.

An operator causes a reference mark to follow the contour line which is clearly apparent to him. This movement is mechanically transferred to an adjacent drawing table, where the contour is delineated with a high degree of precision. By the same general process the operator follows the curb lines on all streets, and the outline of all buildings, and with amazing rapidity and fidelity soon has a complete map quadrangle drawn.

How Each Type of Map Is Made

This map is next copied photographically, and four line prints are made of it in a color known as "non-photographic blue." This color is "blind" in the subsequent photographic processes. Each of these four boards is to be used for preparing the copy for the color. One of the boards will be the black board for culture, one will be

Hamilton County Make Aerial Survey

is being made, what it costs, and how it will be used

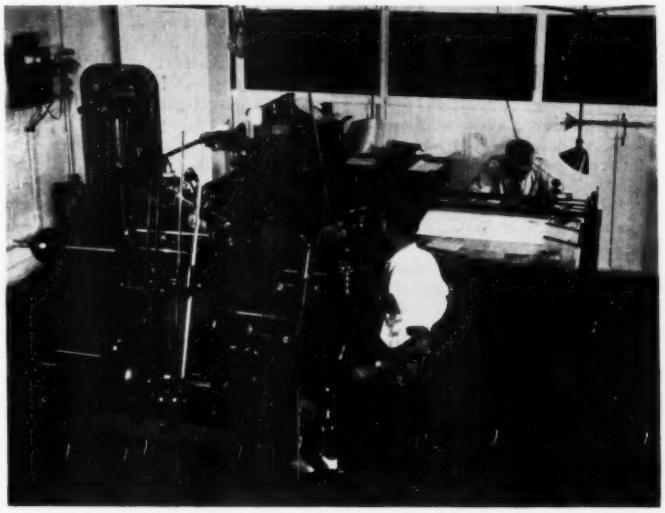
the brown board for topography, one will be the blue board for hydrography, and one will be the green board for vegetation. On each board, which to begin with shows all of the complete map detail in non-photographic blue, the particular detail which is to be reproduced in one color is traced in ink. When this board is recopied by photography, only the detail that has been inked shows, and the rest of the non-photographic blue detail disappears from the final color-separation drawing thus prepared.

At this stage all lettering, titling, and symbols are added to the respective boards. Lettering is applied by "stick-up" methods. This means that each title is printed in a printing press on a transparent material like cellophane. This material has a coating of wax on the under side, and is cut out of the sheets in which it is printed and stuck down on the map at the proper place. Not only are words and numbers applied in this manner, but symbols of swamp and woodland are prepared by the sheet and cut out to proper shape and stuck down on the map.

At the conclusion of the preparation of the color-separation boards, the map is ready for lithographic reproduction. A plate is prepared by the lithographers of each board, so that four plates in all will be made, from which the reproduction will be printed. The plates are put on a printing press, and the four different colors of ink are applied and the paper run through. Sometimes this is done in one operation on a four-color press, and at other times it is done in two or more steps. The map will be published in an edition of a thousand sheets for each quadrangle, and these printed map sheets will be made available to the people of Cincinnati and Hamilton County at nominal cost for the many studies by which maps of this sort save money for taxpayers.

Photomap

The photomaps are compiled by quite a different process. A very large board on which the mosaic is to be assembled is laid out, and on this board the geographic grid is precisely drawn, and all the control points which have been established by the city and county are plotted. One print is then made of each photograph, and this print is the first step in a process known as the "Slotted Templet Method." This means that the skeleton of control which has been established by ground survey is multiplied many-fold to precisely govern the position of more than a thousand pictures which go into making up the final photomap.



This is the stereoplanograph, an ultra-precise stereoscopic contouring machine which draws the maps of the City of Cincinnati and Hamilton County, Ohio.

On each of these pictures, nine points are carefully selected. Because of the overlap of the pictures, these same points appear on several pictures. The picture is then placed over a light piece of cardboard known as a "templet," which is the same size as the picture, and the points which have been selected on the picture for the Slotted Templet operation are pricked through onto the piece of cardboard.

The next step in the operation is punching the cardboard; that is, the precise geometric center of the cardboard representing the center of the picture has a hole punched in it, and each of the other points which have been pricked through onto the cardboard are punched in the form of a long, narrow radial slot. Among the points which have been selected on the picture for the Slotted Templet process, and which are pricked through onto the templet, are the fixed-control points of the ground survey which have been established by field methods. Each of these ground-survey points has previously been established on the layout of the boards on which the mosaic is going to be assembled.

The templets are now assembled, placing them in their approximate positions on this board, and placing studs which are anchored to the board, at each known or fixed-control point. For each surveyed control point hundreds of "graphic" points are established by the Slotted Templet process. This is accomplished by passing a stud through the corresponding slots of the overlapping pictures, thus conjoining them through the slots, which can expand and contract accordion-like, to conform the pictures automatically and very accurately to the scale of the fixed points which are anchored to the board. At the end of this operation a precise known position has been established for at least nine points for every picture. As the templets are picked up, these nine points per picture are pricked through a hole in the stud and thus form a dense control net which governs the mosaic. By comparing the measurements between these points with the measurements of the images on the picture, a factor is determined for the enlargement, the reduction, or the tilting of the picture in case of sloping ground, to cause it to fit the control. A photograph is then made by projection, and enlarged or reduced or tilted to fit this control. This picture is pasted down carefully to conform exactly to the control.

When all the pictures have thus been

carefully assembled in their proper positions, the "stickup" of street names and similar data is added. The mosaic is now ready to be copied in quadrangles, and from these copy negatives the new pictures of each quadrangle are reproduced at the precise scale of 1 inch to 200 feet, mounted on cloth, with a hinge along the westerly edge to permit them to be bound into an atlas. The skill of mosaicing is such that not only is the photomap extremely accurate, but has the appearance of a unitary picture, and completely overcomes the mosaic effect which was so distressing in early day attempts of this nature.

How the Maps Will Be Used

So now the City of Cincinnati and Hamilton County are well on the way to having a complete set of contour maps and a complete set of photomaps of the entire county. What is to be done with these maps? Scarcely a day will go by, after the maps are finished, that an office solution is not made of some question which formerly could only be answered by sending a party into the field. Every time one of these questions is solved by merely looking at the map in the offices of either the City or County Engineer, or the City or County Planning Commissions, the taxpayers will be saved the cost of having several men and a car going out on the ground and spending hours or days measuring up and making a map, or a drawing, as the case may be, to give the engineers the information needed.

In road development, for example, the photomaps will give an indication of where property to be served lies, and what property will be least disturbed by various alignments of the proposed road. The topographic maps will have their greatest value in the design of the drainage systems of the city and the county. In addition, they will be almost constantly referred to for grade and alignment determination on proposed streets and to estimate excavation quantities and costs. Utility distribution can be planned and future needs seen graphically. The ratio of developed to vacant land can be counted on the photomap. Nearly every kind of problem can be planned on the photomap and engineered on the contour map, for every house and tree and acre of the city is revealed in complete and accurate detail.

The City Planning Commission will use the maps in determining the location of schools, recreation projects, hospital sites, and traffic and transportation studies. The houses can be counted as an index to present requirements, and the vacant lots counted to determine future ultimate demand.

The Auditor of Hamilton County, as the official tax assessor for both the city and county will determine whether land uses and values are still as shown on his books, or whether they have changed through the years, as is often the case in a rapidly growing community. He can check the buildings against his records.

The survey is based on the plane rectangular coordinate system of the State of Ohio, south zone, as established by the U. S. Coast and Geodetic Survey. The cooperation of this organization with the city has been of tremendous value in initiating and controlling this project.

At the time the agreement with Fairchild was under negotiation late in March 1948, the most pressing problem was speed of photography. Less than one month of time was available to accomplish the photography before the full-leafed trees obscured the ground. Within four days, one airplane was on the job and a second joined it a few days later. All photography was completed by April 15. In this time the entire county was photographed twice, once for the topographic maps and again for the precision photomaps.

The initial delivery will consist of twenty-five quads lying north of the city, the area needing the greatest study at the moment. Thus the city and county will have at their disposal those maps which are most urgently needed at the present time. As the budget permits, the work will continue in orderly fashion. Aside from the flying, there is no haste. The job is being produced steadily and effectively. By this means, Cincinnati and Hamilton County are assured of having the best modern maps available at the minimum annual expense. Long-range planning, of course, calls for the eventual publishing of maps of the entire city-county area.

Cincinnati and Hamilton County are the first in America to provide the complete facts through maps for the orderly development of all engineering and planning purposes on a county-wide basis. There are already several other cities and counties following the Cincinnati leadership. If a forecast may be ventured, it might be predicted that soon every progressive, metropolitan area of the country will be similarly mapped.

Richmond, Calif., Adopts New Zoning Ordinance

AFTER nearly two years of intensive study by the Planning Commission (together with informal citizen meetings), public presentations, and necessary public hearings, the City Council of Richmond, Calif., by unanimous action has recently adopted a comprehensive ordinance.

Richmond, an important East Bay city opposite San Francisco, was one of the nation's most active communities during the late war. With the development of four large Kaiser shipyards, the city increased in population from less than 25,000 to more than 125,000 in a period of about two years. Most of the many thousands of war-housing units now existing will eventually be removed, and an opportunity will be afforded for urban rebuilding in accordance with the city's master plan, of which the zoning ordinance is a part.

The new ordinance, which supersedes the one adopted 25 years ago, includes nine districts and regulations covering such matters as transitional uses; approval by the Commission for the location of schools and churches in dwelling districts; areas for garden apartments and neighborhood shops; distinction between Board of Adjustment matters and "conditional uses" to be approved by the Plan Commission for airports, institutions, large-scale neighborhood projects, and the like; off-street parking, and removal of non-conforming uses after a fixed period of years.

Earl O. Mills of St. Louis, Mo., served as planning consultant.

Land-Value Taxation OK'd by Johannesburg Chamber

LOCAL taxation in the Transvaal has been under examination by the Transvaal Rating Commission, appointed in 1948. Giving evidence before this body, the Johannesburg Chamber of Commerce supports taxation of site values and the freedom of improvements from taxation, as in effect in Johnnesburg and other Transvaal municipalities for the last 30 years. In general, as reported in *Land & Liberty*, the Chamber favors taxation of site values because:

(a) It discourages sites being held vacant or underdeveloped.

(b) As improvements are not taxed, the owner of the site is encouraged to expend more capital and thus construct a better or more commodious building than he would do if improvements were subject to taxation.

(c) The property of the lower-income groups contributes much less proportionally to the Fund for which Assessment Rates are used than the wealthier members of the community.

(d) The transfer to improvements of any portion of the rate levied on site value, no matter how small, would increase the amount payable by the lower-income groups, and reduce that payable by others.

(e) It is impossible to devise a system of taxation which would insure that each ratepayer would benefit in proportion to the amount he contributes to the Assessment Rate Fund. Charges for direct services, such as water, light, sewerage and rubbish removal are made against each individual ratepayer, but the Assessment Rate Fund is expended for general community benefits.

Flood-Free Pumping

By DAN R. RANKIN*
Peerless Pump Division
Food Machinery
and Chemical Corporation

ONE of the occurrences that is most frequently experienced by many a water-works operator of long standing is the "flooding out" of pumps, to shut the whole plant down for several days until the motors could be dried, the debris cleaned away, and the pumps started again. He will show you marks on the walls indicating the high-water level and will describe the trials and tribulations of getting the pumps back in operation.

Most of these pumping plants would again be flooded if extreme high water were reached. New plants are usually installed assuming that the water will never rise higher than some previous record. However, conservative designers will spend thousands of dollars building pump houses with walls well above any previous flood level so that they are positive their pump houses will never flood.

To Minimize Priming

When installing a horizontal pump on a river or lake for the primary source of water, it is always desirable to get the centerline of the pump as low as possible to minimize priming. This requires a suitable dry pit to accommodate the pumps and drivers deep enough so that even during the lowest possible water conditions the pumps can not only be primed but will operate efficiently without cavitation. It is also necessary to build a heavy concrete wall above the highest possible flood level. Often short-sighted designers will either locate the pumps too high so that priming is difficult and cavitation occurs during operation shortening the pump life, or because of cost they will fail to put the walls high enough to give real protection. Experienced horizontal pump plant designers have long since learned that there is no compromise with cost in regions where high variations of water levels exist. Frequently, however, sites for pumping plants must be abandoned because of the high pumping-house costs where a wide fluctuation of water level exists.

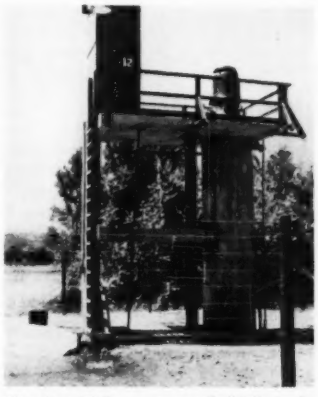
With a vertical-turbine-type pump the pump bowl units can be located well below the minimum possible water level and yet the driver can be far above the maximum-flood stage. The simplification in piping layouts, the reduction in cost of the wet-pit pumping plant for the vertical turbine pumps as compared with the expensive larger dry-pit plant for the horizontal pump, the elimination of priming devices, and the surprisingly high efficiencies of the vertical-turbine-type pumps —all add up to make the vertical water-supply installation attractive when the overall picture is intelligently considered. The cost of a vertical turbine pump, which includes the vertical hollow shaft driver, the discharge elbow, the discharge column pipe, the drive shafting, and the pumping-bowl unit, almost invariably runs somewhat higher in price than the cost of a horizontal pump with its driver and base plate. Obviously an intelligent comparison cannot be made on this basis, because it is the cost and operation of the complete installation, including the pump house, valves and fittings, suction piping, and the discharge piping up to the same point as the discharge elbow of the vertical pump which enters the cost problem.

Special protective enclosures are sometimes used around the pump drivers to protect them when water enters the pump room. Although some of these have been successful, they do not provide the positive assurance of protection and access to the driver that results from putting it completely out of range of the water.

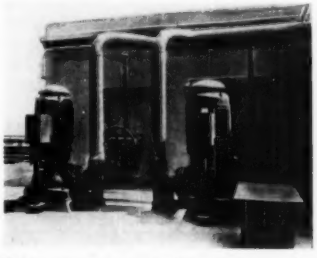
Frequently when a new design engineer comes on the scene and is saddled with a pump house built many years ago he not only has the problem of old low-efficiency pumps and periodic flooding but the need for additional capacity. Since a vertical-turbine-type pump takes only a fraction of the floor space required by a horizontal unit, it is frequently possible to revamp the horizontal pump house with very little expense, and have a modern pumping plant with increased capacity, greater efficiency, no flooding hazard, and no priming or cavitation.

Suited to a Standby Driver

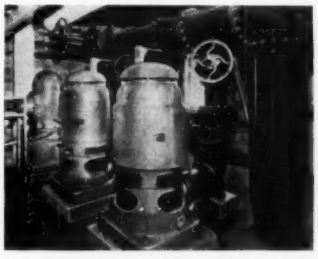
Frequently accompanying emergency conditions such as floods and storms is the problem of power shortage at this most crucial time. A vertical-turbine-type pump is excellently suited to the furnishing of a standby driver in the form of either an engine or a steam turbine when the unit is normally connected to an electric motor. Very little additional floor space is required since the right-angle gear head, or belted-power take-off, can be mounted directly below the electric motor, and the engine or horizontal steam turbine mounted off to one side. The size of the wet pit is not affected by the standby driver since it is mounted upon the motor floor where it is easy to get at and above flooding hazards.



Floods will have to reach high to be damaging. It can be seen here that the driver platform holds the electrical switchgear, as well as the motor.



Here are two pumping units on the Delaware River in Pennsylvania. Notice the neat arrangement of the drivers far above possible flood levels.



View of the driver floor of an installation where one standby unit is driven through a right-angle gearhead. Two others are electrically driven.

* Delivered at the winter meeting of the National Association of Vertical Pump Manufacturers.

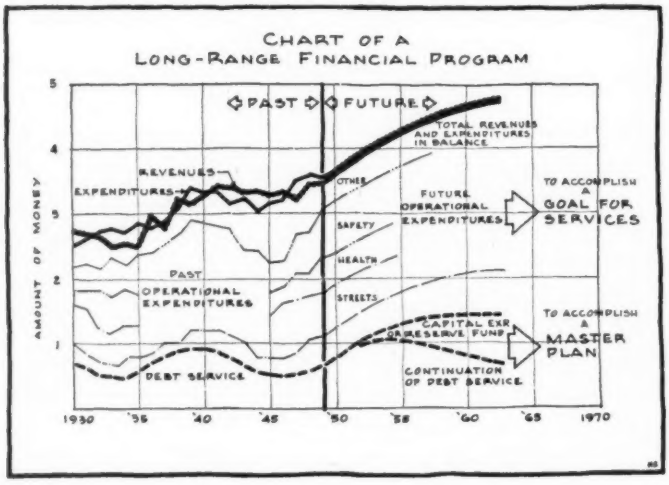
Municipal Finance Needs More Foresight

A goal for services is as necessary for an operational-expenditures program as a "master plan" is for a capital expenditures program

By HERBERT W. STEVENS
Tennessee Valley Authority

FINANCIAL farsightedness has become a necessity for most municipal governments. City officials who work on annual budgets find it necessary to look ahead and plan operating expenditures and capital expenditures at least one year in advance in order to draw up a budget. Some believe that this annual budget meets the needs for financial planning. Some others, however, realizing that capital needs can be foreseen for several years in advance, have developed, in addition, long-range capital-improvement budgets. In doing this they have taken a significant half-step forward; but it is only half a step because capital budgets, which provide only for capital needs in advance and not for operating needs, are not complete long-range financial programs. Furthermore, they put the cart before the horse, by failing to establish service standards and goals before determining the physical facilities which are required to implement them. Very few cities have taken the complete step—which is development of a long-range program to accomplish service goals and master-plan goals, with plans to meet future operational expenditures as well as capital expenditures.

A careful examination of the present situation will show that it is curiously illogical. If, for example, a yearly operating program as well as a capital-outlay program is necessary for an *annual* financial program, why should not a *long-range* financial program include equal consideration and study of operating requirements? There are several ready explanations, of course. One is that capital expenditures, when they become necessary, create a bigger problem; at least, they create a greater impact on the annual budget. In most cases large capital expenditures cannot be absorbed into the annual spending program but must be divided and spread over several years, thus requiring the type of fiscal planning which now is part of a capital-improvement program. Operating expenditures, on the other hand, usually fluctuate less and can be anticipated for each year with greater reliability. All cities, however, spend more over a period of time for operations than for capital outlay. According to recent figures compiled by the Bureau of Census, almost three-fourths of total expenditures (in 397 of the largest cities) was for operation. That would make it three times as important a part of the total expenditures as capital expenditures. Thus, programming of expenditures to avoid impact is not in itself sufficient, for, in the long run, the steady pressure of operating expenditures may far exceed in importance the intermittent impact of heavy capital expenditures.



It may be that one reason for the lopsided emphasis on long-range capital-improvement programming is that city planners have long and loudly urged capital-improvement programs as a means for assuring construction of projects proposed in master plans, whereas there has been no one to beat the drums for long-range operational programs (except for an occasional farsighted city official or a pioneer in this phase of public administration). Municipal officials whose job it is to provide municipal services and who must operate those services to meet the demands of each day are prone to forget the value of planning the operation of the same services to meet the demands of tomorrow. City planners, in their devotion to the field of physical planning, and in their zealousness to accomplish projects which have been planned, likewise are prone to forget that capital improvements are not an end in themselves but are merely a means for providing better facilities to carry out the services and operating programs of the city. It is evident that the principles of planning and operation should be brought together for their mutual benefit.

Questions for the Planner-Budgeter

This puts a new problem before the planner-budgeter: he must estimate the operating needs of the future as well as the capital needs. He must estimate how much money will be needed in future years for the operation of all municipal departments—police, fire, sanitation, education, recreation, and the others. In some cities these estimates have been made by the simple expedient of plotting past expenditures and revenues on a graph and extending the lines of the graph into the future. A glance at the accompanying illustration shows how that may be done without much difficulty. But it also shows that such a system would lead to an un-

known future unless some goal were established, setting up a desirable level of services toward which the program could be aimed. A goal for services is as necessary for an operational-expenditures program as a master plan is for a capital-expenditures program.

The two can be developed in much the same manner. An individual or committee should be given the responsibility of making the necessary studies, provided with technical assistance, and requested to submit recommendations for service goals to the chief executive, and through him to the legislative body. To develop the goals would require fundamental research into the proper functions of local government. Two questions would have to be answered: what services should the city provide for its citizens, and what should the quality or level of the services be? The work would involve analysis of base studies on population, economy, and general character of the community in order to estimate trends of growth and the future demand for municipal services. The quality of services would be measured against standards devised for the local community after comparison with professional criteria, with services in other cities, and with the reasonable capacity of the city to finance them. Naturally, no standards could be devised without continuous assistance of all administrative personnel of the city.

Once the goals were established, and adopted as long-range objectives by the city's legislative body, administrative personnel would again be requested to assist in framing the details of the program to accomplish the goals and to estimate the costs. Here, too, the procedure would be similar to that used in framing the capital-improvement program: each municipal department would be requested to set forth its aims and proposed activities (within the scope of the general objectives established) and the type of organization and equipment necessary to accomplish these aims, together with estimates of costs of maintaining the proposed organization and equipment. Salaries of additional personnel, operating costs of equipment, overhead, and other expenses would be added together to arrive at future operational costs. After these proposals were filtered and modified according to the capacity of the city to pay, they would be assembled together to form the future service program of the city.

The operational expenditures necessary to pay for this program would be added to the capital expenditures necessary to pay for the capital-improvement program to provide an estimate of the costs of operating the government in the future. These would be modified as necessary to balance anticipated revenues, and the financial program thus devised would be revised and modified each year to meet new situations.

One of the principal values of such a program would be that the need for new revenues could be anticipated in advance, and the effect of gaining or losing those revenues could be measured in terms of the services and facilities gained or lost. Armed with such information, municipal administrators could present a stronger case to the state legislatures, or bodies of taxpaying citizens, as to the needs of the city and the revenues necessary to provide those needs. The city would stand a better chance of being able to finance those needs in the future.

Exhibit Shows Problems of Suburbs

A NEW panel exhibit entitled "An Urban Fringe Problem" has been produced by the U. S. Public Health Service for use at meetings of civic groups and public-health and city-planning organizations.

The exhibit points out the health problems arising when an urban community with an effective health and sanitation code is surrounded by suburban areas without such safeguard. The panel is in full color and treated in a semi-cartoon style, illustrating numerous conditions frequently found.

For example, industrial wastes and untreated sewage from upstream will require intensive water treatment by the downstream city water plant and may kill fish and make unusable the city's waterfront recreational facilities.

A trailer camp and a real-estate subdivision are shown to illustrate that though life in the country may be conceived to be ideal, there can be a lack of sanitary conveniences taken for granted in the city (the inside toilet).

Insects and rodents flying and climbing over the city "walls" show that the city boundary is in reality no bar to the spread of disease.

The panel is 4 feet high and 8 feet wide, and on its detachable legs the exhibit reaches to a height of 7 feet. Its shipping weight is 270 pounds complete with legs and packing case. The exhibit needs only an electric outlet for lighting up the Lucite explanation legends.

Inquiries concerning the exhibit should be addressed to the Surgeon General, Public Health Service, Attention: Division of Sanitation, Washington 25, D. C.

Modern Assessing in Plainfield, N. J.

By ALDEN W. WELCH
Research Editor
The American City

A VISITOR knowing nothing whatever about assessing would be bound to say that Plainfield, N. J., has a good-looking Assessor's Office. It didn't look this way two years ago when the manager of a loan office, a realtor, a blacksmith and a contractor put in part time as a four-man assessing setup. Then the office was factory-style—drab brown paint, cement floor, rolltop desk and a 12-year-old typewriter. Now it has cool green paint, colored asphaltic tile, Art Metal furniture, and fluorescent lighting.

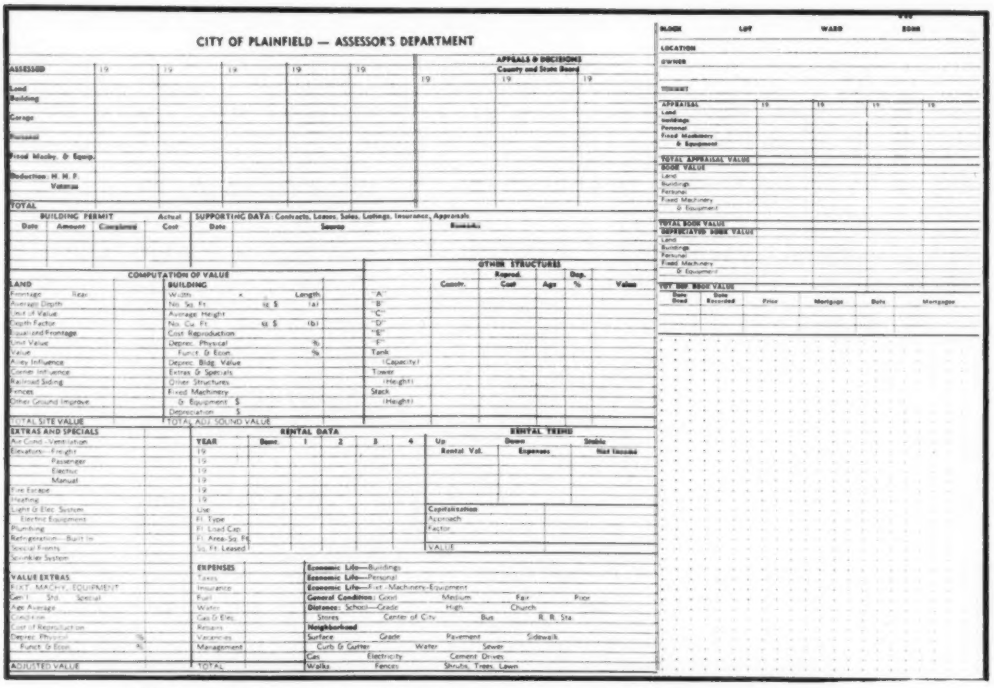
The change in the system of assessing has been even more profound. Each of the part-time assessors assessed in one of the four wards, and the discrepancies in valuations resulted from the difference in personal judgment. There were many complaints and they were difficult to answer. The record for each parcel was kept on a single assessment card without explanatory or supporting data.

Following passage by the voters in 1947 of a referendum authorizing a one-man Assessor, William G. McDowell was appointed on March 1, 1948, to set up a scientific system. On July 1, he became the Assessor for a four-year term.

There are 18,000 tax items, 11,600 real property and the others personal property. In instituting the first step of checking all the records, 15 engineering-college students were hired to measure exteriors and put the data on a new master card for each property. This card, reproduced here, is not easy reading, but shows that the facts covered are comprehensive. The second step consists of inspections of the interiors by the Assessor. The first year has added to the tax roll 1,300 new taxable properties amounting to $3,686,188, and a good many of them were existing items of personal property that had been missed.

In Plainfield, as in some other progressive cities, they are attempting so to assess and tax that everyone contributes to the support of the local government in proportion to the amount of his property. Assessments on just personal experience and rule-of-thumb opinion of values have been stopped.

Buildings on a site must be inspected, measured, and analyzed. They must be squared and cubed in order to estimate their value. Each structure is of a


CITY OF PLAINFIELD — ASSESSOR'S DEPARTMENT

The front of the new 9½ x 14-inch assessment card used in the Assessor's Department.

type and must be grouped with others of its type to form a basis for equalization. This involves diagramming every property to arrive at a comparable frontage. The equalized frontage is multiplied by a base rate applying to a section, block, or part of a block.

Considerable figuring of land and building values and the volume of fractions involved consumed time out of all proportion to the amount of work accomplished. According to Assessor McDowell, what was needed was not only a calculating machine but an automatic calculating machine. A study of such machines proved that the Friden ST Machine had what was needed. The Assessor was further favorably impressed by the courteous training given in the course of the sale. The investment has already been paid for in time-saving alone, to say nothing of mental wear avoided.

Assessments must be uniform, related to one another in accordance with the actual values of the properties. This can be attained only by providing unquestionable yardsticks. As an assessment is a continued process, a good system of assessing is more important than a good setup of valuations in a one-time assessment.

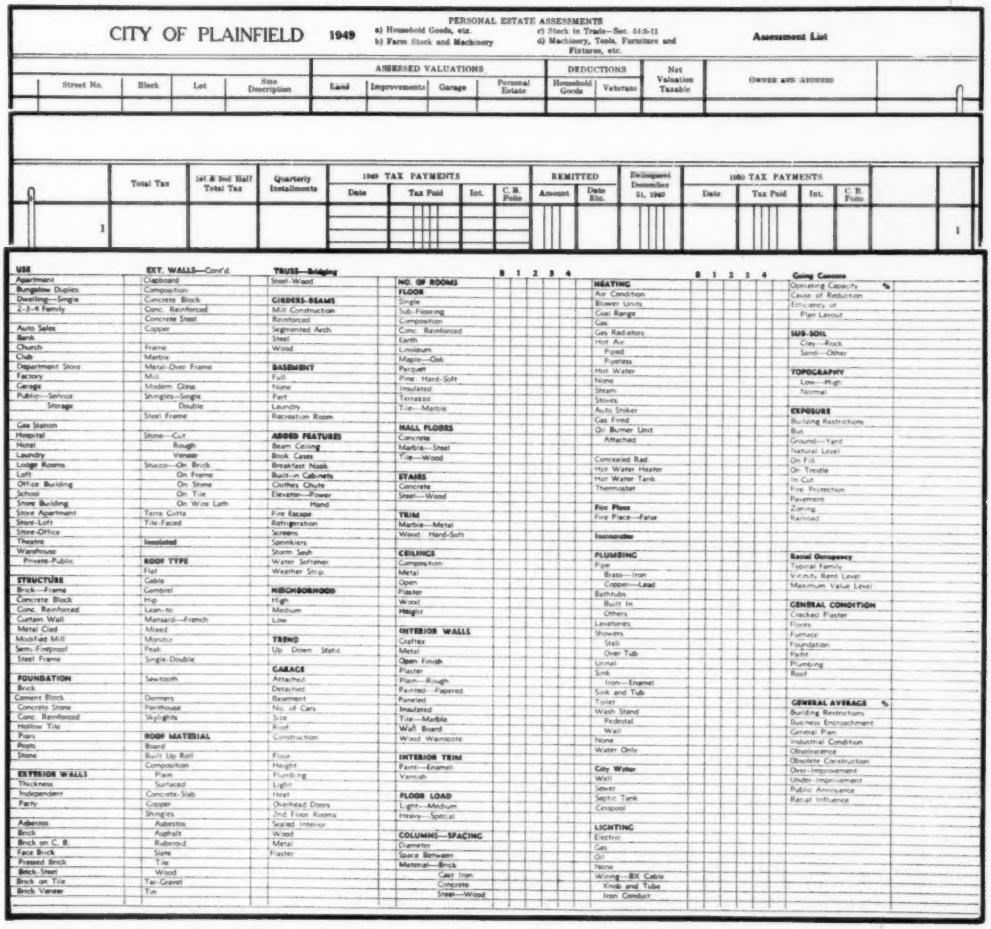
Purpose of It All

Assessments and taxes have always been a problem of government and the serious concern of the taxpayer. Taxes are the product of the assessment or valuation—sound or questionable—multiplied by a rate designated in New Jersey by the County Board of Taxation. Lack of uniformity in assessments is partially responsible for the present plight of many of our municipalities.

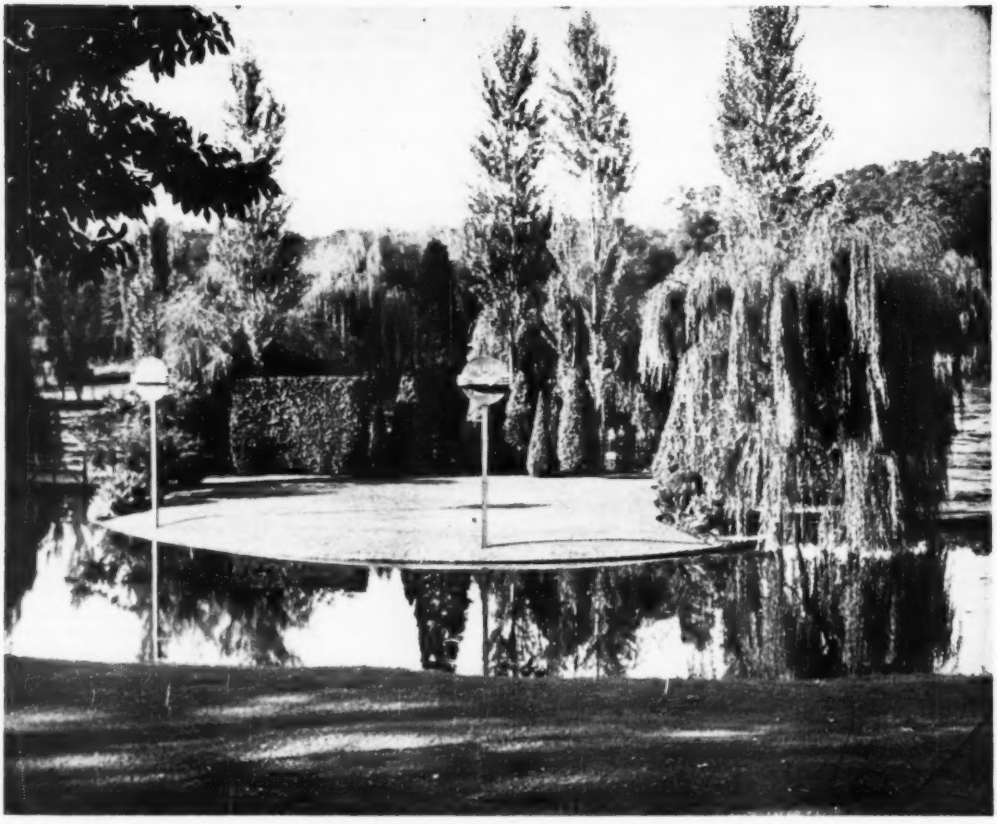
The card shown here is the basic assessment record used in the City of Plainfield. From it the assessment roll is written by Remington Rand bookkeeping machines. These machines write the descriptive information, consisting of name of taxpayer, address, property description, and valuations. The tax is taken from a rate pad (made up new each year) which gives the amount of tax for valuations in one-hundred-dollar steps. In New Jersey the first half-year tax is based on last year's rate.

The Assessor's office extends the taxes. The new assessment roll is prepared in three copies. The original copy goes to the Tax Office for billing in January. The second copy goes to the County Board of Taxation. The third is the Assessor's copy.

When the rate comes in after May 1 from the County Board, the calculations are made for the total tax. At this time the tax book is received from the Tax Collector and to the tax duplicate are added the total tax and the second half-year tax, to be billed in June.



The upper two forms are facing pages of the tax duplicate. The large card is the reverse side of the assessment card.



On this island stage, against natural backgrounds, artists representing all branches of the theater appear each summer.

MICHIGAN CITY'S

International Friendship Gardens

By JOSEPH B. SMITH

THE International Friendship Gardens at Michigan City, Ind., annually draw thousands of visitors from all over the world. The 25 cultivated acres contain the typical flora of nearly every nation. Most of the plants were donated and the plots designed by the nations' leaders — kings, presidents, dictators.

Actually the Gardens were born 52 miles away at Chicago in the Century of Progress exposition of 1933 and 1934. The success of the Gardens Exhibit there led to the foundation of the permanent exhibit on a 100-acre tract in Michigan City.

The chief promoters of the idea of furthering international amity through the common ground of love for flowers were — and still are — the Stauffer brothers, Virgil and Joseph. These two Hammond, Ind., florists wrote rulers of nearly every nation, from King George VI to Mussolini, for approval of the plan. From all corners of the globe came encouraging response.

The site selected was a valley floor hemmed in by a rim of heavily wooded hills and traversed by a lively creek. Less than a mile from Lake Michigan, it met most of the requirements. It was accessible to Chicago's international "melting-pot millions." Steam and electric railroads, three U. S. highways (12, 20, 35), and several bus lines led into the city. The rim of hills provided the valley with a slight temperature advantage needed for some rare plants. The creek would provide a natural, cheap water supply. The soil was fertile.

The land for the Gardens was leased to the Stauffer brothers for 99 years at a cost of $1 by Dr. Frank Warren of Michigan City. Dr. Warren included a proviso for renewal in the lease and stated that the price was fixed at this nominal figure because of the humanitarian ideals of the brothers.

Aid from Near and Far

Almost alone the brothers began clearing the valley of its dense underbrush in the summer of 1935. The city officials provided WPA labor assistance when possible.

Meanwhile from all over the world plants, seeds, and young shrubs donated by nations of all sizes began arriving. Lotus plants from Egypt and a carload of tulip bulbs from Holland piled in on the workers.

Following a severe electrical storm in 1937 the gardens were submerged under a swirling mass of flood waters. Two dams further up the creek had given way during the storm. City officials and "unofficials" all contributed their efforts for several weeks to repair the damage. And by the next summer the Colonial American, British, Persian Rose, and Polish gardens were finished.

In 1939, Hitler's mechanized hordes all but demolished the brothers' dreams as the armies rolled over Poland. But a letter from the President of Poland stating the Polish garden would keep the memory of their homeland alive in the breasts of American Poles gave renewed vigor to their work.

Each individual garden tries to portray the character of the nation it represents. All are laid out as a series of formal gardens in an informal setting. From a hillside one can see the pattern. The Grecian garden with its formal clipped hedges typifies the orderly, precise people who gave the world mathematics. The English garden, open and rambling, is typical of the people who roamed the earth building an empire. The French love of flare is aptly expressed by the flaming Cardinal Richelieu roses.

Tulip Display This Month

Last fall the Associated Bulb Growers of Holland sent over 25,000 tulip bulbs to be added to the 200,000 previously donated. This evidence of the friendship that the Dutch people wish to maintain with the United States adds to the beauty of one of the outstanding displays of tulips in America, which was opened to the public in the International Friendship Gardens on May 7.

The flood of 1937 gave birth to the idea of erecting an island stage which would enhance the Gardens as a civic center of culture. A site was selected directly in front of a wooded hill which formed a natural amphitheater. Since

The Grecian Garden, representing Greece's contribution, is mathematically precise, exemplifying the people who gave the world, among other sciences, geometry, algebra and arithmetic.

then this stage has held performances of opera, symphony orchestras, choral groups, and legitimate stage productions. Hundreds of artists doing Chicago engagements have appeared at the Gardens. Every summer a musical festival is presented and performances have attracted capacity crowds of 5,000. The many miles of summer resorts and summer homes lining the eastern shores of the lake offer a huge audience.

This Theater of Nations, often referred to as the Salzburg of America, will present the following major programs in its 1949 season: Opening Concert, sponsored by the Studebaker Corporation on July 16; Lucille Manners, soprano, July 23; The International Music Festival, July 30; Opera, "The Mikado," August 6; The Chicago Woman's Piano Symphony, August 20; A Travelogue, "Wings Over Vikingland," August 27; and Sunday Symphonic Concerts.

Garden events consists of Artist Wet Paint Day, June 26; Rose Festival, June 15-30; and weekly flower shows as the Parade of Flowers continues through to the beauty of autumn.

Television is expected to carry many of the programs of the summer music festival into Chicago homes. Future plans include conventions of authors, artists, educators, and others who love the charm of the beautiful. A contemplated cathedral garden is expected to be the scene of many weddings in the month of roses.

In a demoralized, shattered world the Gardens are a practical approach to the development of international friendship.

Park Executives Move Headquarters to Chicago

FRANK L. BRUNCKHORST has been appointed executive secretary of the American Institute of Park Executives, and the Institute's headquarters have been moved from Rockford, Ill., to 30 North LaSalle St., Room 831, Chicago, it was announced recently by Robert E. Everly, President.

Prior to his appointment, Mr. Brunckhorst served for three years as publicity manager for Bendix Home Appliances, Inc., at South Bend, Ind. During the previous 15 years he was reporter, editorial writer, and night editor for newspapers in Gary, Ind., and Dubuque, Iowa. He has a degree in Journalism from the University of Wisconsin.

Opening for Senior Land Planner

Examinations for the position of Senior Land Planner with the Philadelphia City Planning Commission will be held on June 21. Resident requirements have been waived for the vacancy, which has a salary range of $5,560 to $6,160 a year. Applications, which should be filed by June 9, can be obtained from the Civil Service Commission, Room 875, City Hall. Further information may be obtained from Robert Chantigan, Executive Assistant, Philadelphia City Planning Commission, 18th floor, Market Street National Bank Building.

Ten Years at Racine

The Racine, Wis., sewage-treatment plant shows the value of good records as an aid in handling difficult wastes

The Racine plant as it appears after ten years of service.

By THOMAS T. HAY
Superintendent of Sewage Treatment

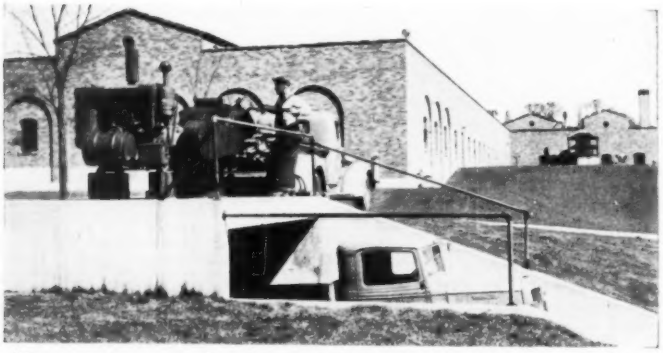
SEWAGE treatment at Racine, Wis. (population 67,542, 1940 census), has reached its tenth birthday. And like many other ten-year-old youngsters it has been feeling strong growing pains.

Growing Out of Digesters

The plant started operating in 1938 by furnishing primary treatment and digesting the sludge in three Dorr digesters. The plant was designed to handle 12 mgd. and in 1938 received an average of 9.6 mgd. The growing then proceeded to take place faster than any engineer had a right to expect. Now the plant handles an average of 16.3 mgd. Like a lot of youngsters who are growing out of their pants, the Racine plant is growing out of its digesters.

Over a period of years certain features stand out. One might be the cooperation with the fire department in tracing down explosive materials in the sewers. Many times, the source of these conditions has been uncovered by a study of the sewer system. Another outstanding experience that we hope won't have to be undergone again soon has been that of handling and adequately treating wastes from plants that change from peacetime to wartime production and then back again.

But—for the moment overlooking the unusual—there was one experience during this 10-year period that contributed substantially to the end result of making the difficult tasks easier. This, the keeping of records and reports, provided accurate and complete information that has been assembled, compiled, and analyzed.



The plant also serves the community by grinding the sludge into fertilizer.

Annual Reports

The several factors affecting the compiling of the annual report are:

1. *General arrangement and scope.* Quality of paper and printing produces the first impression of the report. The style and quality of the written material, together with pictures and graphs, hold the attention of the reader. Good organization leads to clarity of understanding.

2. *Description of facilities.* Some knowledge of the plant and its history is necessary to understand the operating data.

3. *Operational procedures, unusual problems, maintenance.* These should be covered by text and tables. Data in tabular form offer ease in cross-comparisons which may be augmented by graphs and curves with the general comments contained in the text. This should cover the mechanical operation, maintenance, and problems affecting operation.

4. *Adequacy of data.* This is of

prime importance. Complete data on flow and other qualities, together with the analytical data, should be given and should be covered by a discussion. Degree of treatment and loading should be analyzed and compared with previous operation. The effect of plant effluent on receiving waters and any special studies made should be covered.

5. *Cost data.* The cost of operation, maintenance, and improvements and additions are always of great interest. An analysis of plant operation in relation to operating costs is advisable.

6. *Recommendations.* No report is complete without findings and recommendations. Present operation should be discussed in relation to proposed changes or improvements. Results of studies or investigations should be given and any proposed studies or projects discussed. Most plant operators wish to improve the quality of their work, and an intelligent approach to this is expressed in his findings and recommendations.

To satisfy the requirements of a good annual report, it may be readily seen that all daily operation must be carefully recorded, maintenance listed, unusual conditions observed and noted; for the omission of any item may affect the accuracy of the results of any study made.

Aid from Records

Records often are of definite aid in special cases. During 1942 a slight decline was noted in pH of the sewage during August. As this was slight and did not seriously affect the treatment, the only attention given it was careful observation. When a sharp drop was noted on September 22, 1942, which persisted for several days, a trace was started through the sewer system. The source of the acid waste was found to be an industry which did a large amount of metal pickling. The concrete sewer showed the disintegrating effect of the acid. On September 30, 1942, samples were taken on the sewage at 30-minute intervals between 8 a. m. and 5 p. m. The only samples having pH over 4 were at 12:30, 1:00, and 5:00 p. m. A report was prepared, and when presented to the plant, officials immediately cooperated in locating the source, which was found to be a leak in a lead-lined tank. This was repaired at once. Careful investigation and proper presentation of the records created friendly relations with another industry, and saved a section of our sewer system from destruction.

As sewage enters the treatment plant, it is chlorinated for odor control and biochemical-oxygen-demand reduction. The chlorine, in combination with the air that is introduced in the channels, has some flocculating effect.

The solids are reduced to a more nearly uniform size by four Chicago Pump Co. comminutors, each having a capacity of 12 mgd at one-foot loss of head. These cut the large solids and screen them through a $^3/_8$-inch opening.

The grit, or inorganic material, is removed from the flow by Rex grit removers composed of two channels 10 feet wide and 40 feet long and one channel 20 feet by 40 feet. The grit is mechanically removed by scrapers, and facilities are provided for the recirculation of the grit and also for washing the grit in a flow of clear water. Grit is used for fill material.

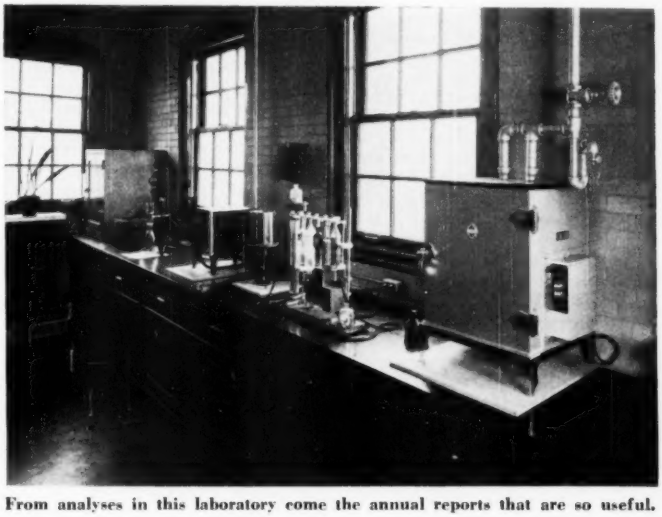
The organic solids removed by the four Rex clarifiers. The volume of these clarifiers is 1,500,000 gallons. The organic material is removed by sedimentation and flotation and removed from the flow by mechanical equipment. The scum and sludge removed are pumped to Dorr digesters for treatment.

The clarified liquid from the clarifiers is chlorinated for bacteria kill. It is then metered and discharged into Lake Michigan through an effluent line 1,300 feet long and at a depth of 14 feet below the lake level.

The organic solids removed by the clarifiers are digested in three digesters, each 50 feet square and 17 feet deep. After digestion, these solids are dried on glass-covered beds and ground so that they may be used for soil improvement.

The sewage is conveyed to the treatment plant by an intercepting sewer system consisting of 9.73 miles of sewers varying in size from 12 to 72 inches in diameter. In this system there are three pumping stations.

One has a rated capacity of 20 mgd. It has two pumps of 14-inch and 16-inch powered by synchronous motors of 125 and 175 horsepower, respectively. This station handles all the sanitary sewage which originally was discharged to Root River, to Lake Michigan north of the river and the main business district. The second lifts the sewage from the low area west of Island Park and discharges to the interceptor on the north side of the river. This station has two sewage pumps with a total capacity of 0.6 mgd. The third lifts the sewage from the Lakecrest area and discharges into the sewer system at Lombard Avenue. This station is a Flush-kleen system of 0.5 mgd.



From analyses in this laboratory come the annual reports that are so useful.

The Sweetwater, Texas, Airport Ordinance

STARTING last January, Sweetwater, Texas (population 10,848, 1940 census), began operating its airport under a new ordinance that is being quoted as a model throughout the southwest. Essential points of the ordinance are:

1. That the airport is to be operated as a non-profit undertaking.

2. That an airport guard be created, consisting of the airport manager and other members of his staff.

3. That the airport manager must reside on and devote his entire time to the airport.

The airport ordinance outlines several general rules governing the conduct of airport business and operation of aircraft on and around the field. The ordinance was drawn by H. R. Bondies, City Attorney. Copies of the ordinance may be obtained by writing to him.

Municipal
Public
Relations

The City Tells Its Story

By HENRY DAVIS NADIG, *Director of Public Relations, New York Regional Plan Association*

A notable MPR operation; an expert takes over in Teaneck, N. J.; notes on MPR activities in Great Britain

BACK many columns ago, describing the work of a public relations firm for a few municipalities, I wrote: ". . . it may be the awakening light that serves to bring the full dawn of complete and official public relations practice."

Such has proved to be the case in Teaneck, N. J. (present population about 35,000 and four miles across the George Washington Bridge from Manhattan), where one of the country's most able city managers, Paul A. Volcker, now has got himself—and the Township of Teaneck—one of the most able public relations men.

The background: Teaneck more than a year ago retained a public relations firm (which had other municipal clients) to tell its story. But the handling of the MPR didn't sit too well with the press round about. When the contract expired, Township Manager Volcker began looking around for a public relations counselor who would serve on a voluntary basis. His find has been sparkling brightly (and has been putting Teaneck on the map literally and MPR-wise) ever since Alvin Gardner started making up his Teaneck notebook early in February.

Mr. Gardner, a resident of Teaneck, operates an advertising agency in New York City under his own name. In the past he has given a great deal of himself and his capabilities to Teaneck: he was Salvage Chairman during the war and rolled up the best per capita average (his program became a model operation) for communities throughout the country and *Life* covered it in a series of pictures); he developed a public relations plan for civilian defense which was sent by Washington to mayors throughout the U. S. shortly after Pearl Harbor, and he successfully ran the first local war-time Red Cross war fund.

With this behind him, Mr. Gardner took over as MPR Director of Teaneck on February 1. While this, too, was a voluntary job (Gardner goes at it as though he were being paid $5,000 a week!), he tackled his new task in the same methodical manner and with much the same system he has developed for his own highly successful business. How?

He began with a case chart, dividing his MPR objectives into 10 categories:

1. General—All Objectives Combined
2. Teaneck as a Community
3. Administrative and Governmental Departments
4. Protective Services
5. Recreation and Education Program
6. Community Projects
7. Business Development
8. Library Facilities
9. Inter-Community Relations
10. Miscellaneous Services and Facilities

He then broke down each of these divisions to cover every phase of an MPR program under the general heading. For example, under "Administrative and Governmental Departments," his breakdown includes: Municipal planning, property, budget, taxes, operating methods, maintenance, zoning, trees, engineering, legal, debt service, and personnel.

But that is by no means the end of MPR Director Gardner's system (which is unique in MPR, so far as I know). He has made a cross index of *factors*, such as residents, organizations, patriotic groups, department heads, and youth groups, and this is so arranged as to provide him with an automatic index and filing system. He can find anything in his notebook before you can say municipal public relations. And to back it up with details, if he's away from the municipal building, he can call an assistant there and have the facts almost as quickly over the phone.

Nor is that all, in this highly systematized, efficient, and successful MPR operation.

We now come to the second phase of Mr. Gardner's planning for action. This consists of a kind of map, also divided into 10 sections, which traces every angle of MPR activity from research to final report. This he has broken down into these headings:

1. Study
2. Supervision
3. Planning
4. Creation
5. Assembly
6. Distribution
7. Equipment
8. Consultation
9. Budgeting
10. Final Report

Under each of these divisions, Mr.

AMPRO Meeting June 17

THE Association of Municipal Public Relations Officers will be launched on June 17, 1949, in New York City, when the Governing Board of AMPRO will meet for an all-day session at the Town Hall Club.

A carefully selected Governing Board has agreed upon the following chief objectives of the fledgling organization:

1. To provide a clearing house for exchange of information and experience in municipal public relations.

2. To stimulate the growth of official MPR through organized leadership and action.

3. To promote public and official understanding of the functions and principles of MPR.

4. To encourage recognition of the MPR profession as a non-political activity of government.

The Governing Board includes:

Edward T. Beall, Public Relations Officer, Norfolk, Va.

Winfield Best, Director of Public Relations, American Municipal Association.

Eric Carlson, Associate Editor, THE AMERICAN CITY.

Frank E. Feliz, Assistant to General Manager, San Francisco Bay Area Council.

Melvin R. Freeman, Public Relations Manager, National Fire Protection Association, Boston, Mass.

Alvin Gardner, Director of Public Relations, Teaneck, N. J.

Martin R. Haley, Public Relations Director, Saint Paul, Minn.

David R. McGuire, Jr., Director of Public Relations, New Orleans, La.

Henry Davis Nadig, Public Relations Director, Regional Plan Association, New York.

Harold S. Rand, Public Relations Officer, Rochester, N. Y.

Gardner notes a list of items for development and execution. And again, these functions are also numbered for codifying the progress of each of his MPR jobs.

An example of his work in action is cited by MPR Director Gardner in connection with advance information on municipal problems for the interest and cooperation of local citizens. He writes:

> In the case of the maintenance of a highway-beautification program, the Department issued releases justifying a court action to compel the removal of an objectionable sign on the highway displayed by a private concern. These releases pointed out the advantages of maintaining the parkway character of the highway transversing the township, indicating the award by a local garden club to the township for its beautification program and the interest of the State of New Jersey in converting the highway into a parkway at state expense.
>
> This pre-selling of the Township Council objectives paves the way for a better understanding of the pending suit and the advantages accruing to the township by vigilance on the part of the governing body. To further this particular program, the township has acquired the strips of land on each side of the highway, the desirability of which is pointed out to the citizens, even though these acquisitions are sometimes at payers' expense.

Mr. Gardner also found an opportunity for action in the interpretation to citizens of a proposed municipal budget, the largest in Teaneck's history.

> Proper interpretation, through news releases [he writes] pointed out that in spite of the increased budget and relatively high tax rate, the actual cost to the citizens is extremely low by reason of the assessed values' being based on the original cost of the building. The tax rate, when measured against the 1949 dollar, becomes a fraction of what it would be if assessments were based at current values.

Mr. Gardner's comprehensive program for continuous action has already proved itself in these few months, and it seems bound to achieve a great variety of good for the local government and the people of Teaneck in the future. Most of you probably saw the little news story about Teaneck's squawk on not being on the road maps. That's another example of Mr. Gardner's alertness and his all-out drive *pro bono* Teaneck. He's constantly advising and counseling with the mayor and council, Mr. Volcker and other officials—most of whom marvel at the way he has everything down in black and white—and gets results.

Other recent MPR activity by Mr. Gardner includes work on organizing a comprehensive celebration for the opening of a new firehouse, starting a community camera contest (this will develop into an MPR photo file), making information widely known about such unique Teaneck drives as its free anti-rabies innoculation of dogs, and preparing exhibits and other material for use by the assistant city manager and other officials in explaining the council-manager form of government and its benefits before various community groups and organizations. He has also arranged a seminar on municipal public relations for all officials of the local government.

Not every municipality can be quite so fortunate as Teaneck: not every municipality has a Volcker and a Gardner. Nor is it likely in but a few cases that an MPR expert will both be in a position to volunteer and at the same time have the drive and the personal civic and municipal interest to go in there and pitch. Nevertheless, Mr. Gardner's system and his method of operation can be applied anywhere. It is well worth knowing about.

British PROs Spark Progress

The initiative in public relations in England, quite in contrast with this country, seems to have come with the development of the Public Relations Officer program developed by the National Association of Local Government Officers (NALGO) under the able leadership of Alex Spoor, Director of Public Relations for NALGO.

There are something more than 50 PROs in England today—full- or part-time public relations officers for local-government authorities. The activity of these PROs during the past few years, their enterprise, led to the formation last year of an Institute of Public Relations. The Institute includes all engaged or interested in public relations—whether for government departments, local authorities, commercial firms and organizations, or professional bodies. The Institute has been growing steadily and held a very successful first annual conference last fall.

Within the Institute, the municipal PROs have formed their own sectional group for the interchange of views and experiences and for the further development of municipal public relations. This group is developing standards, organizing meetings and conferences on MPR, acting as a clearing house, and conducting courses of training.

The lively British MPR activity is epitomized in the magazine *PROgress*. A quarterly published by NALGO and capably edited by Norman H. Rogers, it is devoted solely to public relations and is an important factor in promoting the sound development of MPR. Each issue is usually keyed to some specific phase of MPR—the current spring issue is mainly devoted to the development of exhibitions. It is heartening, to say the least, to see from the pages of *PROgress* the marked advance being made by Britain in this new field.

Extensive correspondence which I have had with PROs in many parts of England is, in addition, continuously convincing as to the efficacy of the basic MPR principle and objective: to serve democratically the municipality and its people through refined methods in the give and take of information.

Many of these British PROs would like to hear from those in the United States who are engaged in MPR or who have to do with MPR activities, such as the publication of reports and pamphlets, radio programs, films, work with various citizen groups and with the press. They would be pleased to receive examples of our efforts. Why not exchange with them?

Exchange with Britain

The following are a few of the PROs in England who would be glad to hear from you, with examples of your MPR efforts:

E. A. Joy, Information Officer, Town Hall, Bedford.

F. W. Bradnock, PRO, Council House, Birmingham 1.

H. V. Hindle, PRO, Development and Publicity Department, 30 Baldwin Street, Bristol 1.

T. H. C. Bartrop, PRO, Council Offices, New London Road, Chelmsford.

J. K. Eldridge, PRO, Town Hall, King's Road, Chelsea, London, S.W. 3.

A. Eden-Green, PRO, Lambeth Town Hall, Brixton Hill, London, S.W. 2.

J. P. Phoenix, I.O., Municipal Building, Liverpool.

Terence F. Usher, I.O., Town Hall, Manchester 2.

J. P. Lamb, I.O., Central Library, Sheffield 1.

R. C. Evans, I.O., Information Bureau, South Road, Southall, Middlesex.

Norman G. Liddiard, PR Assistant, Civic Offices, Swindon.

Miss J. M. Kitching, PRO and I.O., Information Centre, 290/296 High Road, Tottenham, London, N. 15.

A. E. Vince, I.O., Municipal Offices, Twickenham.

The photographs in the article, "Planning and Development in Israel—A Desert Transformed," which appeared in our May issue, were reproduced through the courtesy of the Keren Haysod agency of Israel.

Berkeley, Calif., Refuse Service

A detailed study of how the city collects and disposes of its refuse

By **OWEN DYER**
Superintendent
Department of Refuse Service
Berkeley, Calif.

HEALTH and sanitation should be the primary objectives in the plan, organization, and cost of refuse collection and disposal; whether the operations are to be performed by the municipality or private contract should be determined on the basis of efficiency and service.

Refuse-collection practices, and therefore costs, are materially affected by certain local conditions of the city. Cost comparisons with other cities or private companies do not necessarily give a true picture. Topographical differences may be responsible for substantial differences. The scale of wages, privileges allowed the men, location of containers, and difficulty in getting to them have a direct bearing on the number of pickups each crew of a truck can take care of in one day. The type of equipment used, the length of haul to the disposal plant, and the method of disposal are all relevant factors.

With this introduction, we present the manner in which the Refuse Department of the City of Berkeley is operated. We deal with field collection, disposal, and office in the order presented.

The Department operates with 16 semi-trailer units and four standard units. The truck bodies have an 11-cubic-yard capacity and are mounted on Chevrolet and GMC chassis. The loading height of the truck body is 5 feet 7 inches from the ground. These trucks make two or three loads a day, depending upon the location of the route. One foreman is in charge of the field supervision. His salary is $350 a month.

The present wage scale, as of January 1, 1949, is $281 a month for drivers who are in charge of their routes, and $247 a month for the helpers, plus standard vacation, sick leave, and retirement benefits. These city crews operate on a five-day, 40-hour work week.

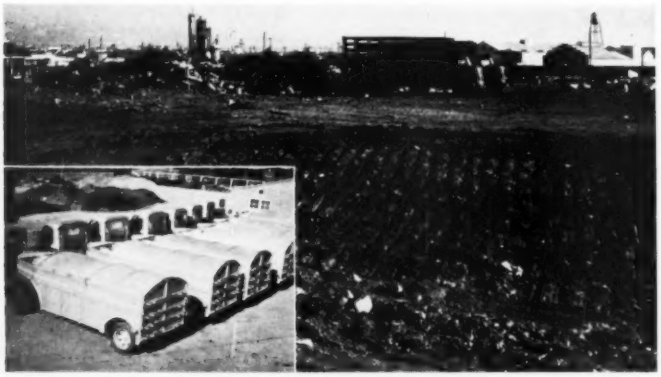
Collections are made from 15- to 40-gallon approved garbage containers. There is no segregation required by the householder. Collections are made from the rear of the buildings, on the curb. Unfortunately, Berkeley does not have any alleys to make the work easier. The collection routes and work schedules for each crew are mapped according to the topography of the city. Certain sections of Berkeley are quite hilly. The following rule has been fixed as a fair day's work for the collectors.

Location	*Number of calls per 3-man crew*
Hill Section	405
Flat Section	480
Business Section	360

The city operates one truck for the collection of wastepaper from the business district. This service, furnished on a charge basis to the business houses, is based on the quantity and frequency of schedule. The monthly rates for such services are as follows:

9-ft x 9-ft. Burlap Service	*Rates per month for the following number of collections weekly* 1	2	3	6
(a) Wastepaper and flattened cardboard located in basement or up one flight of stairs	$2.00	4.00	6.00	12.00
(b) Wastepaper and flattened cardboard located on the ground floor inside or outside the building where the material has to be carried out	1.50	3.00	4.50	9.00
(c) Wastepaper and flattened cardboard located at curb for collection	1.00	2.00	3.00	6.00

The city uses 9-foot square burlaps for the collection of this material, and sells the paper for $10.00 a ton delivered to a paper processing plant in Oakland.



Rubbish is piled and burned, then covered with dirt. The isolated location prevents smoke or other nuisances from becoming objectionable. Inset: Large-capacity trailer trucks designed by the city collect refuse in Berkeley.

Collection Rates

The city is divided into three districts, based on topography and distance of haul to the dump, which is located on the San Francisco Bay waterfront.

The minimum rates for one 30-gallon-or-less container per week are as follows:

District No. 1....80c a month
District No. 2....85c a month
District No. 3....95c a month

A new rate schedule was adopted by the City Council in May, 1948. Rates have been carefully worked out as to quantity and frequency of collection, and provide additional charges where

the cans are located in the basement or up flights of stairs. The method of determining the rates are the same in both the business and residential areas. Interested cities may obtain details by requesting a copy of Resolution No. 30,353 N. S., from the Refuse Collection Department of the City of Berkeley.

Disposal

Since 1924, the City of Berkeley has reclaimed more than 100 acres of tide lands which are now being utilized for business and industrial purposes. Berkeley is doubly fortunate in its disposal facilities. Not only is the amount of waterfront in tide lands almost unlimited (7½ square miles of the City of Berkeley lies under water) but the location is such that it is isolated from the residential and business areas by an industrial belt along the Bay front. This development has been accomplished through a planned program of fill-and-cover dumps. As long as this operation meets with the approval of the State Department of Public Health, Berkeley has solved its disposal problem for many years to come because it has many hundreds of additional acres of tide lands available for future operations.

The University Avenue Dump is used for the disposal of all household mixed refuse which includes the putrefactive food wastes. The waters of the Bay in front of Berkeley are shallow, averaging not more than 8 feet at high tide. The refuse is dumped by the trucks on the ever-advancing face of the dump, bull-dozed into place and compacted by the weight of the trucks. Cover material comes from local excavating contractors and builders, who bring their surplus dirt and rock, and who are paid from 25 to 50 cents a cubic yard for it. The depth of the fill averages about 10 feet including a 2-foot dirt cover. The operation results in the reclaiming of about 4½ acres of tidelands a year. Plans are now under way for the development of a new 60-acre tideland dump site. The principal engineering required is the construction of a bulkhead around the area.

At the foot of Virginia Street on the waterfront, less than a half mile distant, is a separate rubbish dump operated by the city. This is used for all non-putrefactive waste, both combustible and non-combustible. Private refuse haulers bring their materials here. The schedule of fees ranges from 50 cents to $2 per truck load. One unusual feature is that private persons hauling their own rubbish from their place of business or residence within the Berkeley city limits may use this dump without charge. All combustible material received is placed in piles or platforms and is set afire. It is burned two or three times a week so that there is no great accumulation of material at any time. The distance from the business and residential areas, plus the Bay area's natural air conditioning through constant breezes, results in the absence of smog or other nuisances. This rubbish dump is reclaiming tide lands at the rate of approximately 1½ acres per year. Although the amount of material handled is comparable to that at the garbage dump, the fact that it is burned permits the bulk to be reduced, and allows for much better compaction.

Because the rubbish dump is the only one in the area, it receives substantial quantities of material from outside the city limits. The disposal charges for rubbish from outside the city limits are higher, ranging from $1 to $3 per truck load. Exclusive salvage rights are granted by the city to separate contractors at each dump.

Three men are required to perform the daily work of disposing of all garbage and rubbish hauled by city and private equipment to the city dumps. Two tractors equipped with bulldozers are also required. Two of the men are classified as tractor operators. Each is charged with the responsibility of disposing and covering the material in a manner that will meet with the approval of the state and local health authorities. The third man is a checker. His duties consist of handling all the business to be transacted under our system of dumping privileges. He directs all private traffic, keeps a daily record of the number of vehicles entering the dump, and maintains a daily control of all transactions in connection with those individuals who have to pay for dumping.

The monthly salaries of these men during the first half of this fiscal year were as follows:

Tractor Operators — 40-hour work week ..... $288.00 a month
Checker—40-hour work week..... 235.00 a month

The office personnel consists of:

	Per Month
Superintendent	$525.00
Senior Account Clerk.....	270.00
Senior Cashier Clerk.....	270.00
Bill Collector	263.00
Intermediate Account Clerk	233.00
1 Clerk	228.00
2 Clerks	218.00
1 Addressograph Operator.	203.00

Bills are prepared and mailed from this office quarterly. All postings to the individual ledger card is done by a Burroughs bookkeeping machine.

How New York's Land Values and Improvement Values Compare

THE Tax Department of the City of New York reports the following tentative valuations of taxable land and improvements in the five boroughs for the fiscal year 1949-50:

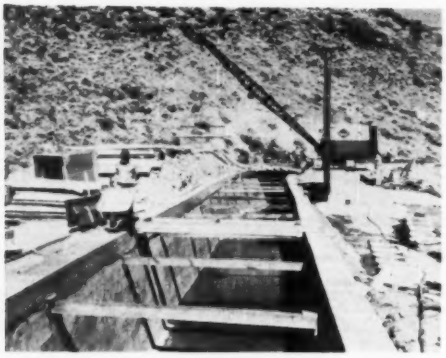
Borough	*Land*	*Improvements*
Manhattan	$3,789,207,280	$4,222,282,695
Bronx	731,369,801	1,451,919,985
Brooklyn	1,380,740,667	2,701,531,896
Queens	981,023,436	1,945,710,090
Richmond	128,724,630	202,318,610
Total for city.	$7,011,065,814	$10,523,763,276

Combining these figures, the total assessed valuation of taxable real estate for the entire city is found to be $17,534,829,090. New York's property tax also applies to "special franchises," the tentative valuation of which for the 1949-50 fiscal year totals $695,476,207.

The 16-acre parking area shown here resulted from Berkeley refuse operations.

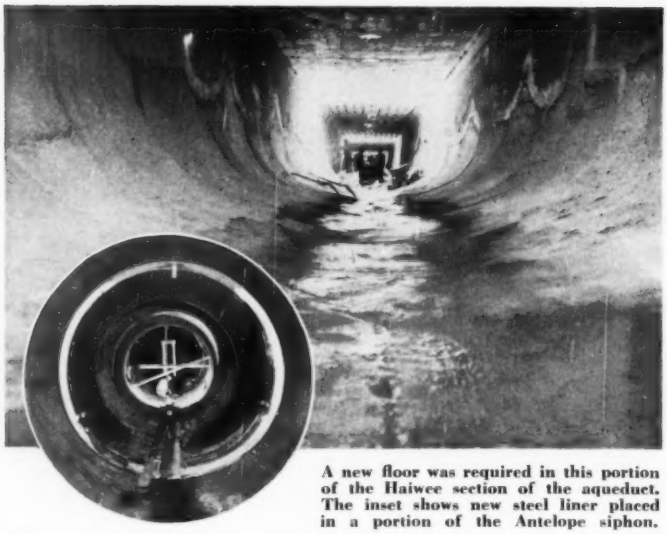
Los Angeles Repairs Its Aqueducts

Precast slab construction makes repair work fast and efficient



Aqueduct gets new curb to increase its freeboard.

Precast concrete provides a new aqueduct cover.



A new floor was required in this portion of the Haiwee section of the aqueduct. The inset shows new steel liner placed in a portion of the Antelope siphon.

LOS ANGELES, with a population now past the 2,000,000 mark, depends upon its 233-mile aqueduct for approximately 75% of its water supply. As a result, this city's Department of Water and Power must plan its regular program of inspection and repair on a streamlined basis, so that the huge water carrier is out of service for only limited periods of time. Last fall, maintenance crews inspected and repaired several sections of the aqueduct in a three-week period, completing the job exactly on schedule.

Repairs were required chiefly because of earth movement. At Rose Spring just below Haiwee power plant, earth movement reduced the aqueduct freeboard and thus cut the capacity of the aqueduct. To correct this, maintenance crews added a curb to the aqueduct and covered it with precast concrete slabs. These had to be constructed carefully because of the curved alignment of the aqueduct. Many of the precast sections had to be wedge-shaped. All had hooks placed in them to facilitate their removal.

In another location, earth movement had raised the floor of the line about 15 inches. To correct this, about 750 feet of conduit floor was removed and excavated to proper depth, and a new floor poured.

The south end of the Antelope siphon required special attention because it passes under a state highway; the traffic made it advisable to strengthen the concrete sections by steel liners, $\frac{3}{8}$-inch thick. Because of limited working space, the liners were cut into three segments, lowered into the pipe, pressed into place with heavy jacks, and then welded.

The work at the Haiwee section of the aqueduct was performed under the direction of Hubert Cahill, Southern District Superintendent, who is headquartered at Mojave. Edward H. Fleming is general foreman. At Antelope siphon the work was under Frank Martin of the Water Construction Division. They report to Burton S. Grant, Assistant Chief Engineer of Water Works.

Belgian Municipal Expert Interviewed Here

Senator Vinck hails trend toward vitalizing municipal government through greater home rule

By FREDERICK GUTHEIM

MUNICIPAL independence from political and financial control by central governments is indispensable to democratic revival in Europe in the opinion of Emile Vinck, a veteran of 34 years in the Belgian senate and, as secretary general of the International Union of Cities, a leading world expert in municipal affairs. Senator Vinck declared:

"Nations that do not recognize the importance of local autonomy, or that despise it, are either totalitarian already or are well on on the road to totalitarianism.

"European nations cannot rest content with the measure of material reconstruction they are attaining under the Marshall plan, but must make further advances in democratic government itself.

"The strength of home-rule movements has been sapped by the system of financial grants-in-aid from central governments over which municipalities have had little control. This has inevitably brought a lowered sense of civic responsibility, an indifference to local politics, and a remote, impersonal overruling authority above and beyond the municipality. If people are to believe in and to practice the very fundamental precepts of democracy, the indispensable place to begin is in local self-government. But let us well keep in mind that democratic home rule is conditioned by competence and efficiency, and that we are responsible for those essential conditions."

The most encouraging step in this direction, said the vigorous 78-year-old Belgian statesman, who arrived in the United States for a visit in March, is the new life that is stirring in local government. For the first time in a century the hemming in of local autonomy and the assumption of control over municipalities by central governments by means of grants-in-aid is being halted.

He added: "But, be it well understood that, when a service is or becomes of state or federal interest, like elementary schools, and a municipality is too poor, we should not consider a state or federal grant as an attempt against local autonomy."

"New legislation enacted in Belgium last year gives cities, long controlled by financial ties to the state, a new charter of freedom, and holds out fresh opportunities for municipal progress," the Senator said.

The new Belgian law strengthens local government by giving to the cities the power to decide on the distribution of financial aid from the central government and to control its administration. A thirty-man commission has been set up for this purpose, composed of the mayors of the nine provincial cities, fifteen other municipal officials appointed by the Minister of Interior, and only six representatives of central-government ministries concerned with public works, public health, and other programs covered by grants. Senator Vinck continued:

"City people themselves sit in judgment on their colleagues. They understand that any waste in expenditures by a city reduces the amount available for distribution to all. Powerful forces of mutual education will be stimulated, through which cities may learn from each other the most efficient and economical ways of municipal housekeeping.

"By putting the decisions on municipal grants in the hands of the people who are most familiar with municipal problems, the most essential forward step has been taken.

"Small, well-disciplined minorities, selfish and possibly fascistic in character, thrive in the atmosphere of indifference in local affairs that has been an inevitable consequence of past failures to achieve genuine local autonomy."

Flexibility Needed in Local Government

Senator Vinck also pointed out the need for flexibility in local government. He said:

"The strength of democracy lies in the fact that it is a system inherently adapted to change. It can tolerate innovations, experiments, even mistakes—because the system itself contains the remedy. That is its essential difference from the brittle structure of all totalitarian states.

"We must believe more in the flexibility of institutions instead of in their rigidity. We must believe in healthy change. If we old folks don't believe in change, the young folks won't believe in us."

Senator Vinck declared that the strength of democracy in Belgium and the Netherlands particularly was directly related to the vitality of local self-government and the progress of the movement for better municipal administration and more home rule.

(*Continued on page* 133)

Front **(left to right): Mayor H. E. Stokke of Oslo, Norway; Senator E. Vinck of Brussels, Belgium, Director Emeritus of the International Union of Cities, and Mayor Ernst Reuter of Berlin, Germany.**
Rear **(left to right): Newly elected vice-president of The United States Conference of Mayors, Mayor David L. Lawrence of Pittsburgh; retiring president of The United States Conference of Mayors, Mayor George W. Welsh of Grand Rapids, Mich.**

The new municipal garage. Note the functional architectural features of the building.

Janesville, Wis., Builds Municipal Garage

By JOSEPH LUSTIG
City Engineer
Janesville, Wis.

JANESVILLE, Wis., is a city of 25,000. It has operated since 1923 under the council-manager plan. The first city manager, Mr. Henry Traxler, is still holding office. The writer was appointed engineer in charge of streets at that same time and in 1927 became city engineer and director of public works.

The department of public works engages in a wide field of activities. These embrace cleaning, construction, and repair of a 100-mile street system, and responsibility for snow removal and ice control. It also includes storm and sanitary sewer construction and maintenance, refuse collection, street and traffice control signs. It covers maintenance of a 500-acre recreational park system including an 18-hole golf course, in addition to bridge construction and maintenance, maintenance of all city buildings, weed cutting, and repair of all automotive equipment and machinery used by the department as well as that used by all other city departments.

With the increasing duties and the growth of this department over the years, a great deal of road machinery and other equipment has been acquired until it reached the point where the equipment was being housed in five widely separated buildings.

Needed for Several Years

The crying need for a suitably located building to house all of this equipment has existed for many years. The war and subsequent material and labor shortages caused postponements of its construction. However, in the fall of 1947 it became imperative to proceed with the plans for a suitable building and to ask for bids for construction.

The selection of the site was based on its proximity to the central pumping station of the municipal water-works system. This site, located in an industrial district, provided the necessary railroad track facilities. It also allowed the use of the existing pumping station boilers to heat the new garage. Furthermore, since the personnel of the water department operates under the direction of the city engineer, it facilitated coordination of the daily work of the two departments.

Floor Plan Keyed to Operation

Since the floor plan for a building of this type is of the utmost importance, before starting the design the writer spent considerable time analyzing different arrangements.

The building design selected consists of two separate sections. The north section, 80 by 94 feet, is of flat-roof construction with a minimum clearance of 12 feet below the main girders.

The live-equipment-storage section, comprising the south section of the building, is 176 by 92 feet with rigid steel frames at 16-foot centers. These frames provide a pitched roof with 14-foot clearance at the wall and 23-foot clearance at the gable.

Since the equipment storage section is kept at a temperature of about 45° F. it is separated from the repair shop by means of a 14-by-12-foot overhead door.

A motor-operated overhead 12-by-12-foot door provides an entrance to the repair shop from the street. Access from the live storage section is provided by means of an interior overhead door. The twin post 7½-ton truck hoist is accessible from either direction and is so placed that it will not obstruct traffic.

In the flat-roof repair shop section, every roof beam was designed to provide for a 3-ton chain hoist loading. North and east windows of ample size and generously spaced provide good lighting.

Stock Room Accessibility

The stock room, which is the heart of the building, is accessible from the street through a fenced passage from the repair shop, from the live-storage section by means of an 8-by-8-foot overhead door for loading or unloading stock, and for servicing materials by means of a two-section counter door.

The stock room is fenced in with 12-foot chain-link fencing to render it inaccessible to anyone other than the stock clerk. A wooden deck provides a second story in the stock room.

The gasoline and diesel fuel pumps are placed within the building immediately in front of the stock clerk's desk where the registering dials can be observed as fuel is dispensed to trucks and equipment. The 1,000-gallon underground fuel tanks are located immediately outside of the building. The dispensing hose is on standards on an island at the curb. This island can service equipment on the roadway or between the island and the building. The gasoline for the 1,000-gallon tanks

is drawn by gravity through a 2-inch pipe from a 12,000-gallon storage tank located in the rear of the building near the railroad track.

The oil and grease storage room is adjacent to the stock clerk's desk and contains a kerosene dispensing pump which takes its supply from a 550-gallon underground tank located outside of the building.

Welding Shop Convenience

The welding shop was placed where equipment requiring attention in the street could be reached or, if necessary, taken into the shop through the overhead door. Isolation of this shop is desirable to prevent the escape of welding fumes into other portions of the building and to eliminate as much as possible any danger to the unprotected eyes of persons looking at the welding arc. Exhaust ventilation is provided to remove the fumes from the shop.

The toilet room contains two showers and an electric hot-water heater which provides water for the showers and for the wash sinks.

In the equipment storage section five 10-by-9-foot and one 12-by-9-foot overhead doors are provided for access from the street. These doors are in alternate bays 32 feet apart and provide means for a quick get-away for the 18 trucks and other equipment at starting time in the morning. Their greatest value lies in providing access to and making available for use any truck or piece of machinery without having to move or shift other equipment. Sanding crews, sewer cleaning crews, street sweepers—crews can be sent out or any emergency work can be quickly initiated by ready access to the equipment desired. The bays between the doors are used for dead or semi-dead storage but their proximity to the truck stalls makes all equipment readily available for towing or hauling to jobs. The large 14-by-16-foot motor-operated overhead door at the end of the storage section permits the entrance of the largest piece of equipment which the department will probably ever use. An overhead door on the track or east side of the building provides quick egress for the motor grader and also for taking stock from railroad cars into the building.

The employees' lunchroom provides a warm and comfortable place for the workmen to congregate during the lunch hour. The space between the gable roof and the deck over the 9-foot-high lunch room is used for storage.

The paint-spray booth with a concrete roof slab is 11 feet high with lighting and ventilation complying in every respect with the rules of the Industrial Commission governing spray booths.

An 18-inch I beam for a 3-ton trolley hoist is provided in the equipment storage section. A hinged column 20 feet long at the outer end of the I beam can be swung up out of the way by means of a winch when the hoist is not in use. The I beam is then supported by the rigid steel frame at its apex.

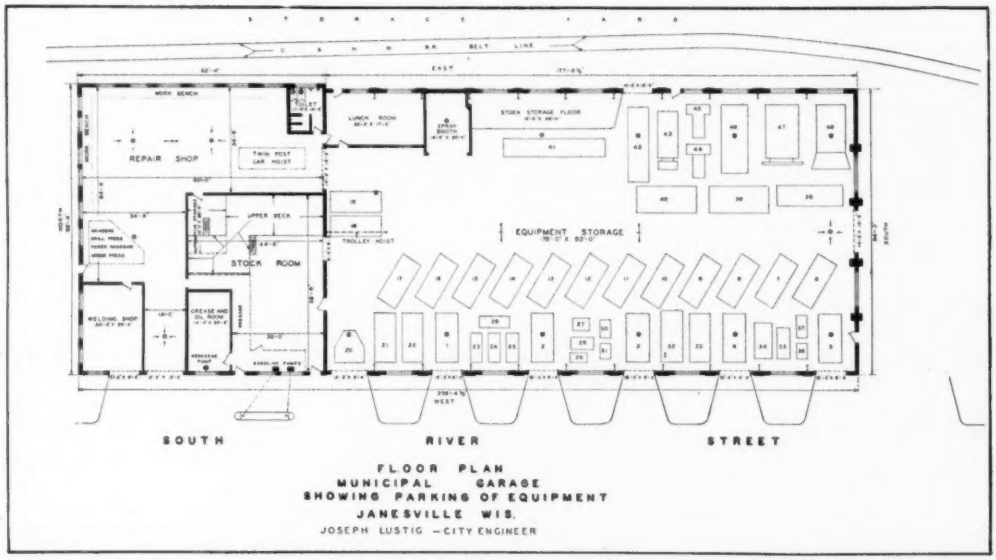
The exterior and interior walls of the building are of concrete blocks.

The exterior of the building will receive a coat of a colored water-proofing about one year after completion.

All walls are free standing and not subject to any stresses due to expansion or contraction of the beams or purlins in the roof system. All purlins were set in masonry pockets and columns were kept free from masonry walls. Reinforced concrete buttresses provide the necessary support for the wind loading on the free-standing end walls.

Separate bids were taken on (1) the structural steel required in the buildings, (2) the general contract, (3) the heating and ventilating work, (4) the plumbing work, (5) the electrical work. The sum of the five contracts was $115,000. The Department of Public Works did the storm sewer and drainage work and laid the floor in the equipment-storage section as part of the winter work program for the department. The total cost of the building not including the land will not exceed $125,000.

The building has been in use for several months and the work of the department in the new quarters is proceeding as smoothly and efficiently as the writer had anticipated.



FLOOR PLAN
MUNICIPAL GARAGE
SHOWING PARKING OF EQUIPMENT
JANESVILLE WIS.
JOSEPH LUSTIG — CITY ENGINEER

Key: 1-19: Chevrolet 1½-ton dump trucks. 20:Elgin Street Sweeper. 21-22: Portable Ingersol-Rand air compressors. 23-26: Case V.A.I. tractors. 27: Mud Jack. 28:4-inch Jaeger Pump. 29: Sand Pump Motor. 30: 6-inch La Bour. 31: 2-inch Rex Pump. 32: Street Flusher. 33: Littleford oil distributor. 34: Huber Roller. 35: Fordson Pup Roller. 36: Flexible Rod sewer-cleaning machine. 37: Turbine sewer-cleaning machine. 38: Warco grader. 39-40: Leach 13-yard rubbish collectors. 41: Athey force-feed loader. 42: Austin-Western 99H grader. 43: Farmall tractor with front-end loader. 44-45: Case tractors with brooms. 46: Barber-Greene ditcher. 47: D6 Caterpillar tractor with bulldozer. 48: Athey overhead loader.

Zoning for Industry—

How Can It Be Improved?

(Comments on Two Articles in the May Issue*)

Balanced Communities Have Virtues

SHOULD the State of New Jersey withdraw zoning powers it has granted towns and give them instead to regional planning authorities—or, at least, to counties? This is the only way the Supreme Court's decision and, for that matter, New Jersey's organic zoning law, can properly be given effect. Without some means of making plans and zoning maps and ordinances on a regional basis, the Cresskill decision can lead only to their being made in effect by the courts. No doubt this decision will help further the cause of regional as against splinter planning, for at least the New Jersey segment of the New York metropolitan area, and to that extent its effect should be good. But what is lacking thus far is a proposal for administrative machinery that will apply the powers given in law and upheld by the high court.

Another question raised by this decision is: What is industry? A fully quantitative definition, expressed in terms of noise, dirt, or other nuisances, is some distance off. But short of that it should be possible to define categories of industry that would admit to appropriate areas much light industry, research facilities, and some largely clerical businesses like insurance companies, that are now seeking outlying locations. To some extent this is but a matter of planning and zoning technique, of a suitable phrasing that will assure predominantly residential communities that their interests and amenities are safeguarded—without setting up an industrial iron curtain. But still more it is a question of education and leadership by planning and zoning officials among their own too-apprehensive neighbors. We must make amends for a generation of lax administration and even abuse of zoning powers, during which time many legitimate apprehensions have been born.

We must have more balanced communities in the long run, and few will dispute it. The increasing demand for municipal services means that most wholly residential communities can't pay for them. If cities persist in excluding industries and businesses that pay relatively high taxes and consume relatively few municipal services, they will become blighted areas of substandard services from which families will be moving in search of better schools, parks, playgrounds, cleaner streets, better water and sewers, more health and welfare services, and the rest. Study after study has shown that in many cities nine-tenths of the residential property does not pay its way. Increasingly we hear cities asking, "How much more 'economy housing' can we absorb?" Whole areas, like Nassau County in New York, are plunged into a healthy introspection by this question and the related one of industrial location.

Planners know there are ways we can have communities, old or new, that contain a reasonable balance of land uses. They know there are virtues in heterogeneous communities as great as are now popularly attributed to the homogeneous communities. This is a good time for them to speak up. One of the first things they can usefully say is that zoning without planning, and splinter zoning—both of which difficulties are implicit in the Cresskill case—are not the way to progress.

FREDERICK GUTHEIM

Regional Planning Boards Needed

IN HIS article in the May issue of THE AMERICAN CITY, Norman Williams, Jr., points out that Chief Justice Vanderbilt's opinion in the case of *Duffcon Concrete Products, Inc. vs. the Borough of Cresskill, N. J.*, looks in two directions—forward to an era of zoning based on area or regional land use plans rather than on plans restricted to ancient municipal boundaries, and backward to the vanishing era of the wealthy all-residential suburb "protected" by the devices of zoning.

We agree with Mr. Williams that the following language of the decision will long be cited as a landmark in judicial recognition of principles which city planners have been advocating since the Regional Plan of New York was published in 1929.

> What may be the most appropriate use of any particular property depends not only on all the conditions, physical, economic and social, prevailing within the municipality and its needs, present and reasonably prospective, but also on the nature of the entire region in which the municipality is located and the use to which the land in that region has been or may be put most advantageously. The effective development of a region should not and cannot be made to depend upon the adventitious location of municipal boundaries, often prescribed decades or even centuries ago, and based in many instances on considerations of geography, of commerce, or of politics that are no longer significant with respect to zoning. The direction of growth of residential areas on the one hand and of industrial concentration on the other refuses to be governed by such artificial lines. Changes in methods of transportation as well as in living conditions have served only to accentuate the unreality in dealing with zoning problems on the basis of the territorial limits of a municipality. Improved highways and new transportation facilities have made possible the concentration of industry at places best suited to its development to a degree not contemplated in the earlier stages of zoning. The same force made practicable the presently existing and currently developing suburban and rural sections given over solely to residential purposes and local retail business services coextensive with the needs of the community. The resulting advantages enure alike to industry and residential properties and, at the same time, advance the general welfare of the entire region.

Regional Enabling Legislation Exists

It may be noted that no official master plan exists for Cresskill and its surrounding area. Under present New Jersey law the only way such a plan could be prepared and officially adopted so as to become binding on Cresskill and its neighboring municipalities is by a Regional Planning Board created voluntarily by two or more municipalities. Zoning powers of the municipalities associated in a Regional Planning Board may be delegated to such board. County-planning-board powers (with one exception which applies at present only to Bergen County) are purely advisory in New Jersey, and the Regional Planning Board is a device which has lain unused for 14 years in the dusty attic of New Jersey's County Planning Enabling Act.

After stating the general principles of area planning quoted above, however, the Court then proceeds to take judicial notice of the regional factors involved in the location and nature of the Borough of Cresskill, a small residential community of two square miles, set in topography unsuited to the manufacturing which its ordinance prohibits and adjacent to "extensive bottom lands of the Hackensack River Valley within the region available for industrial purposes."

The elements of Cresskill's situation were brought to the attention of the Court by the felicitous chance that the Bergen County Planning Board had published, in 1947, a report on "Future Land Development in Bergen County" which was cited in the able *amicus curiae* brief of the Joint Council of Municipal Planning Boards in Essex County.

The Cresskill decision is, therefore, an example of area planning by judicial rather than legislative process. The Court, in effect, approved its own area plan by which Cresskill's ordinance was justified.

We doubt, however, if the Chief Justice intended to set up a long-term master plan for the Cresskill area by judicial decree. We doubt, for example, that the "extensive bottom lands of the Hackensack River Valley" are now so officially earmarked for industrial uses that they might not some day be developed for park or parkway uses or even be zoned for residential uses by municipalities in which they happen to fall.

The application of the principles of area

* See "Zoning of Industry, Some Problems and Recommendations," by Arthur Bassin, on page 147, and a discussion of the Cresskill, N. J., zoning case by Norman Williams, Jr., on page 153 of the May issue.

planning stated by the Chief Justice must surely be construed narrowly as concerns Cresskill's peculiar situation in the light of the present state of Bergen County development.

Must Consider Surrounding Areas

If this reasoning is sound, Mr. Williams' fears that this case can be cited as a general sanction to suburban communities to exclude industry must be taken with a grain of salt. Indeed, the long-term implications of the Cresskill doctrine may be that no municipal zoning ordinance in New Jersey is securely founded unless consideration has been given not only to local development, but also to the development of the surrounding area of which the municipality is a part.

Perhaps this case will give the needed stimulus to New Jersey municipalities to organize Regional Planning Boards with powers to carry out the principles so ably expressed by Chief Justice Vanderbilt under the legislative process rather than to leave it to the courts, not all of whom may have the wisdom of the Chief Justice.

It may also be hoped that municipalities throughout New Jersey will realize at long last that a functioning County Planning Board is an essential aid to local planning and zoning.

C. McKim Norton
Executive Vice-President
New York Regional Plan Association

New Plants Are Often Attractive Assets

BORDERLINE cases are the ones with which most people are concerned when they think of industrial zoning problems. Industries located far away from residential areas are generally not considered a nuisance.

Some cities have tried to set up so-called "buffer strips" in which only very limited industrial operations can be carried on. The trouble with this type of zoning is that often there are not enough light-industry shops and processing operations to fill such strips.

Civic associations and neighborhood groups have sometimes alienated industry without cause. After all, industry in some cities pays from 50 to 80% of the municipal operating budget and certainly does not require the same proportion of services that individual dwellings do. Although an industry may carry the name of a steel corporation, it should not automatically be placed in a "heavy industry" category. I have observed many plants in which blanking and stamping operations have been performed on sheet and strip steel and cold headers on wire stock which, when judged objectively, from the standpoint of noise or vibration, did not justify a "heavy industry" classification. Often the noise of an industrial operation is absorbed or dissipated 25 feet from a plant and is less noticeable than other noises common to a neighborhood.

This suggests a solution. In the newer industrial plants the buildings have been set back from the boundary line and shrubbery and lawn space maintained. Zoning regulations should certainly require adequate yard space and setbacks, as noise and less offensive odors can be dissipated within a few feet of space. Industries should also be required, however, to landscape their properties so that they will blend into community surroundings.

Fredrick R. Storrer
Consulting Engineer
Dearborn, Mich.

Mist-Spraying — Effective and Cheap

By HARRY E. TURNER
Secretary-Forester
Shade Tree Commission
East Orange, N. J.

TREE-SPRAYING in East Orange, N. J., is a major operation in the city's maintenance program for 30,000 shade trees. As has happened in many other cities and towns we have turned to the "mist," or "atomized," spray because the mist-sprayer uses spray materials "to the last drop." Hence, a single tank of spray material lasts longer.

An elm-spraying job done with a mist-sprayer will use as little as *two pints* of the concentrated spray per tree and will give two or three hours of constant spraying without refilling the tank. Our statistics for 1947 and 1948 indicate a low of nine-tenths of a pint and a high of 5 pints of concentrated DDT solution or emulsion per tree, with good control of insects in both cases.

With the mist-sprayer, there is very little "ground loss" of material. The atomized mist is propelled into the air at velocities ranging from 90 to 150 miles per hour. The swirling, turbulent air currents keep the spray droplets near the foliage crown where they are finally deposited. Therefore, it is possible to spray heavily traveled city streets with parked automobiles on both sides all day long. It is no longer necessary to post streets with "no-parking" signs the day before we spray in order to avoid possible law suits from damages to the finish of parked cars, and it is no longer necessary to start the men at 4 a.m., when traffic is at a minimum. We now work in the daylight with better coverage and no overtime rates.

The Lawrence Aero Mist sprayer, owned by East Orange, was used successfully in 1948 for shade-tree spraying and for mosquito control. It is not an uncommon sight to see women put pillows in garments on unscreened second-floor porches, hoping that the drift of the DDT crystals will reach them. Property owners write that they can sit on their screened-in porches at night and play cards without the annoyance of the pest mosquito because the DDT found its way to their screens.

The sprayer is mounted on a converted Dodge "weapons carrier" and an intercommunication system has been installed between the operator's seat and the driver's cab. This obviates the necessity of hand signals, bell, or high-decibel vocal directions. The unit can be operated with two men, one driving the truck and the other at the controls of the mist-sprayer. After the spraying program has been completed the sprayer unit is taken off the truck and stored away on a dolly. The truck is then put back into service as a utility truck for carrying brush and stumps.

This photo shows how a handful of talc which was thrown in the blower of the Lawrence Aero-Mist demonstrates the direction and reaching abilities of the machine. The insecticide is figured in pints per tree instead of gallons.

Boston's New Mystic River Bridge

The architect's drawing of the main span of the new Mystic River bridge. Note the deep water piers and the double-deck construction.

Bridge Authority formed to build record-breaking span across Mystic River—tolls make the bridge self-supporting

TO GIVE the new Mystic River bridge a press-agent description, one can say with accuracy that it is longer than the world-famed Golden Gate Bridge, higher than the crow's nest of any ship which has ever used the river, and built to carry more than 18,000,000 vehicles a year.

This new bridge connecting Charlestown and Chelsea, now under construction, is twice as long as Brooklyn Bridge and the same height from the water line, 135 feet. When completed, it will make its importance felt as far north as Canada and as far south as Washington, D. C.

Independent Authority

Execution of this traffic-relief project rests with an independent group titled "The Mystic River Bridge Authority." With Attorney Ephraim A. Brest as chairman, the Authority includes in its membership Col. Earle R. Barnard, vice-chairman; Attorney John F. Donovan; Attorney Frank Ramacorti and William F. Callahan, member ex-officio, as commissioner of the State Department of Public Works. Edmund E. Capodilupo is secretary-treasurer of the Authority.

The group is charged with the civic duty of the erection of a bridge to be financed, not by state or city, but by the investing public. The members of the Authority are appointed by the Governor to carry out the mandate of a legislative act. The construction, operation and maintenance costs will be paid for, not by the taxpayers of Boston, Chelsea, Worcester, Springfield, or Mashpee down on the Cape, but by the people who use it, the automotive public.

The Authority called upon Charles A. Maguire and Associates, and J. E. Greiner Company, to handle the engineering design. The latter firm, incidentally, has participated in the building of 250 important bridges throughout the nation.

Revenue Financing

The task of financing the new bridge was assigned to a banking group comprised of the First Boston Corporation, F. S. Mosley and Company, and Tripp and Company, Inc. This group arranged the revenue bond issue and the First National Bank of Boston acted as Trustee. No pledge of faith or credit was required of any community or the state to solve one of Boston's most difficult traffic problems.

In 1946 when the Authority was appointed to perform this civic task nobody could tell exactly what kind of bridge should be built.

Suspension bridges, cantilever bridges, sky-scraping cable jobs; one, or all might be the answer. The Authority only knew that the problem they had to solve was a traffic bottleneck caused by the present low-level antiquated drawbridge, a problem which has confounded two generations of automobile drivers.

Traffic Studies

One of the first problems was how much traffic the new bridge would be expected to handle. So a traffic survey was conducted by DeLeuw, Cather and Company. The engineers had to start figuring just what kind of bridge could be erected from a technical point of view. The Authority had to keep its collective mind on the idea of low costs, yet provide ample physical capacity for all foreseeable increase in traffic to the northeast of Boston.

There can be no head-on crashes on the Mystic Bridge.

The bridge will have a double-decked design, providing for three lanes of traffic on each level. Southbound traffic, originating in Chelsea, will roll along the upper level. Northbound, originating in Charlestown, will travel the lower level.

Two-Level Decks

While a single-decked bridge would have been much simpler, the Authority adopted the two-level plan because it is narrower and consequently required less land on the approaches in Chelsea and Charlestown.

Clearance for large ocean-going ships was one of the basic problems. The largest vessel passing through the present unwieldy drawbridge had a height of 123 feet above the water line.

In 1946 the drawbridge was opened 7,000 times, averaging 10 minutes for each opening. On some occasions automotive traffic was backed up to City Square, Charlestown, and Bellingham Square, Chelsea. The equivalent of 48 days' total time was wasted in the irritating traffic jams.

The importance of the Mystic River and its strategic approaches are well known in Washington where War De-

partment records show that an annual average tonnage valued at $52,632,000 passes through the present drawbridge. Naturally the War Department wants a free and clear passage at all times. After hearing the proposals for the new high-level bridge the department approved plans for the 135-feet clearance. At the suggestion of Army engineers the Authority accepted this as the proper height.

Residents in the City of Chelsea now pay the highest automobile insurance rates in Massachusetts because of the high number of automobile accidents within their city limits. A survey has proved that 54% of these accidents occurred in the traffic bottleneck caused by the existing bridge. Part of this burden—a nearly continuous stream of heavy traffic through the city's streets—will be removed by the bridge.

Toll Studies

The problem of how to collect tolls has been one which the river first presented far back in 1633. In that year the first ferry in New England, and so far as historians can discover, the first in America, was placed in operation across the river.

Tolls were collected by the boatman and his price list included charges for oxen, sheep, swine and other animals, along with charges for his human freight, for carts, carriages, and coaches. In 1633 the matter of collecting tolls was a simple matter. Collecting tolls on the new bridge posed a knotty problem for engineers.

Toll Plaza to be Used

Almost 5,000 vehicles an hour are expected to roll across the new bridge. Handling such a volume of traffic without delay was obviously going to be difficult, so the engineers designed a toll plaza large enough for all purposes.

The plaza was to be located in Charlestown, but the Authority pointed out that such a structure in that locality would necessitate extensive land. The new and approved plans call for the toll plaza's being placed midway between the Little and Big Mystic Channels, thus avoiding extra width on the bridge approaches. To the laymen it will appear to be simply a wider section of the long speedway, but to the engineers and members of the Authority it represents the solution of one of their most difficult problems.

There will be seven toll gates on each level to handle the three lanes of traffic on each. An administration building will be built nearby, 100 feet above the ground just below the lower plaza level, in order to avoid taking wider space at either end of the bridge and so as not to interfere with the straight-away flow of traffic.

Intercommunity assistance of fire engines, ambulances, and other municipal vehicles will be assured for the first time with completion of the new structure. According to traffic engineers, only good fortune has prevented disaster under present conditions. It was only a question of time when a new facility would have been ordered by the War Department, because the aged drawbridge is repeatedly out of order. Such a War Department order would have compelled Boston and Chelsea to foot the bill, Boston paying 65% of the bill and Chelsea the remaining 35%. A case in illustration is that of the Meridian Street bridge. Neither city could stand the financial burden such an undertaking would have imposed.

Important Service Facility in New England

The Naval Hospital in Chelsea is one of the most important service facilities in New England. To it are brought sick and wounded Navy men. Ambulances without number have been delayed time and again in the traffic jams between the Navy Yard in Charlestown and the hospital.

Even 15 years ago the Massachusetts Legislature was aware of the urgent need for a new bridge. But the years of the depression blocked the huge expenditures.

Yet the financing of such a project in 1933, as in 1946, presented a problem which some thought impossible. It was obvious that Chelsea and Boston could not carry an astronomical increase in tax burden if they attempted the construction. The State, faced with millions in highway expenditures in other sections, could hardly take it on.

It remained for the Post-War Highway Planning Commission to suggest the method of financing. New York, Maine, California and twenty-two other states had already used it. This involved issuing revenue bonds to private investors without pledging the faith or credit of the state or communities involved. Such a method is new in Massachusetts. At present, the investing public is financing more than $1,000,000,000 worth of public-revenue undertakings throughout the country.

Annual Average Income for the Next Twenty Years

Traffic surveys showed that based on a 15-cent toll for pleasure cars (10 trips for a dollar), and a maximum 40 cents for commercial vehicles, an average annual income of $2,350,000 could be expected over the next 20 years.

Almost 50,000 cubic yards of excavation will be necessary for the bridge supports. More than 50,000 cubic yards of concrete will go into the construction. Approximately 50,000 tons of steel will be used.

The combined efforts of more than 1,000 men will be necessary to complete the job. When it is completed it will cost $46,000 annually to keep the bridge painted and in perfect condition. The painting alone will cost more than $20,000 a year, according to present estimates.

Traffic control, lighting, snow removal and similar items will be included in an annual operation cost estimated at $300,000.

The bonds will mature in 1980. However, with the earnings available they should be liquidated substantially ahead of that date. When the bonds are liquidated, the structure will be turned over to the State Department of Public Works, free of tolls, to become part of the state highway system. The Authority will then be dissolved, leaving as a monument to its task one of the important links in the network of modern highways being planned now throughout New England.

Here is the frame section of a LeTourneau Tournamover getting ready to move a house intact from the path of the bridge on the Chelsea side of the river.

Plumbers Report Requirements For Kitchen-Grinder Operations

Chicago tests indicate that operation with cold water is essential to prevent grease-clogging; that grease traps and catch basins are unsanitary and should not be used

IF KITCHEN food-waste disposers are to operate successfully, they must use cold water as the vehicle to carry ground food particles, and should not be forced to operate through a grease trap or other interceptor. These were the opinions of Edward J. Zimmer of the Chicago Plumbing Testing Laboratory, based on results of a year of tests. Mr. Zimmer expressed this view in a paper delivered before the American Society of Sanitary Engineering at its annual meeting held recently in Phoenix, Ariz.

Test Violates Plumbing Rules

In his test of the grinder, Mr. Zimmer violated every principle of good practice in sanitary waste-pipe installations. He used 38 feet of 2-inch galvanized pipe with 1/16th inch pitch per foot. He installed seven 90-degree bends in the pipe between the grinder unit and the 4-inch soil stack.

The test covered a period of one year from August 27, 1947, to August 27, 1948. During this period, the grinder received fresh and cooked food wastes and other materials. The food-waste amount was as close as possible to that used by a family of eight persons. Greases also were added, consisting of both vegetable and animal fats, in both liquid and solid forms.

In all, 6,300 pounds of food waste entered the unit. These wastes consisted of bones and meat; fresh and cooked chicken entrails, feathers, heads, and feet; fish, vegetables, fruits (including many pounds of peach pits), skins, cherries and cherry pits, strawberries, beet tops and beets, radishes, watermelons, and all other melons.

To this was added a great deal of material that normally would not be included in ordinary kitchen wastes. This included the following:

1,000 lbs. of sand
550 lbs. of glass bottles
Pails full of gravel
Several bushels of granite
1,200 lbs. of newspapers
Bushels of coal, cinders, ashes, tin cans
A few hundred pounds of limestone
Nails, tacks, screws
A few ½-inch malleable iron pipe fittings

Mr. Zimmer reported that at the end of the test, the grinder was somewhat slower in action than it was at the start, with the result that a greater amount of water flowed through the food-waste unit per pound of waste shredded. Inspection of the waste line disclosed no sediment nor grease deposited on any portion of the inner walls.

Grease Traps Questionable

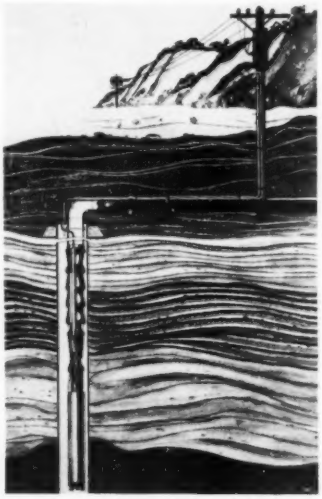
Tests of the value of interceptors such as grease traps and catch basins indicated that the equipment was of questionable merit. If the traps were installed close to the units, they failed to make any interception because of the high velocities of the waste water.

Mr. Zimmer further experimented with two food-waste units installed in his home, and operating with imported wastes. These created a heavy load on the stack. The test disclosed that a mat about 8 inches thick formed on the fluid in the catch basin that was an odorous nuisance.

Laboratory tests also disclosed the importance of conducting all grinding operations with cold water. When the water passing through the grinder was warmer than 110° F., grease was deposited on the side walls of the pipe. At 170° F., the deposit was great enough to cause definite obstruction for a greater distance than water operating the grinder at 140° F. The tests were run with superheated water in dishwashing equipment used in conjunction with food-waste units.

As a result of these tests, Mr. Zimmer concluded that all food waste units be installed with a control such as the cold-water interlock that will insure operation of the grinder on cold water only. He also concluded that the use of interceptors was an unsanitary rather than a sanitary measure because of the filth involved.

Stream-Bed Pump Installation



A Byron Jackson submersible pump 15 feet beneath Lytle Creek bed.

THE Muscoy Mutual Water Co., of San Bernardino, Calif., uses a well in the bed of a stream. This is made possible by using a Byron Jackson submersible pump that feeds a transmission line 15 feet below the stream bed. Much of the time the creek is dry. During normal rainfall, it carries a substantial volume of water from Cajon Pass. In flood years, however, it carries a tremendous amount of water. In 1938, for example, more than 20 feet of the creek bed was scoured away.

The pump is mounted on a substantial foundation both narrow in width and pointed up and down stream. The foundation was located 15 feet below normal creek bottom. After installation, the submersible discharge elbow was covered and the marine cable to the motor-pump unit is protected by conduit. The pump itself is a 10-inch, 2,000-gpm unit pumping against a total head of 200 feet. It is coupled to a 4-pole, 440-volt, 60-cycle motor supplying 125 hp.

Salaries of Municipal Officials And Pay Rates for Selected City Jobs in 1948

NEW information on salaries for selected municipal administrative officials and pay rates for selected city jobs is made available by the International City Managers' Association in the 1949 edition of *The Municipal Year Book*, to be published this month. The data are based upon results of questionnaires circulated in January of this year by the Association and by the Civil Service Assembly.

The importance of local public payrolls is indicated by a Bureau of Census report showing that in October 1948 there were 1,039,000 municipal employees in the country and that during that month they were paid $206,200,000.

According to the *Year Book*, definite municipal progress is recorded in the field of personnel administration. Civil-service systems have been improved, working hours have been shortened, vacation policies are more generous, retirement benefits have been extended and bettered, and good relations exist with employee unions in most municipalities. In 1948 there were only 23 strikes involving municipal employees. The Association comments, "The small number of strikes in the municipal field indicates good judgment, patience, and cool heads in many localities and perhaps good personnel policies also."

The table below, showing the average 1949 salaries of selected municipal officials for cities of various population groupings, is condensed from the salary data appearing in the 1949 *Municipal Year Book*. The *Year Book's* material also includes information on the number of cities reporting, and distribution of the salaries showing the lowest, median, and highest salaries in each grouping.

The 1949 pay rates for 20 selected standard city jobs, also published in the *Year Book*, reveal that in practically every city surveyed, the salaries are higher now than a year ago. The *Year Book* reports the amount of the increases, the region of the country, and the municipality involved, and describes the major methods used in raising the wages and salaries, such as cost-of-living pay-adjustment plans, flat amounts per month for regular employees and for hourly-rate workers, and percentage increases.

The results show that cities that granted pay increases in 1948 generally raised all salaries and not just those of certain groups. The pay rates of 15 of the 20 jobs were raised in 80 to 87% of the cities reporting. For example, the salaries of junior accountants were raised in 81% of the cities reporting, and policemen's salaries were raised in 83% of the cities reporting.

The 13 other jobs for which pay was raised in 80 to 87% of the reporting cities are: fireman, truck driver, mechanic, labor foreman, junior stenographer, clerk, building inspector, plumbing inspector, bookkeeping-machine operator, junior clerk, bookkeeper, telephone operator, junior draftsman, and junior librarian. Four groups receiving more pay in 75 to 79% of the cities reporting were: laborer, heavy-equipment operator, junior typist-clerk, and junior civil engineer. Salaries of playleaders were raised in 71% of the cities reporting pay rates for this position.

AVERAGE SALARIES OF CITY OFFICIALS IN SIX POPULATION GROUPS: 1949

	Cities Over 500,000	*Cities 250,000 to 500,000*	*Cities 100,000 to 250,000*	*Cities 50,000 to 100,000*	*Cities 25,000 to 50,000*	*Cities 10,000 to 25,000*
Mayor (non-manager cities)	$17,408	$ 9,373	$ 7,312	$ 6,166	$ 4,687	$ 3,891
Mayor (manager cities)	.....	4,080	2,227	1,689	1,025	561
City Manager	....	18,333	15,159	11,039	9,081	6,856
City Clerk	8,165	5,707	4,829	4,426	4,129	3,676
Director of Finance	10,325	6,539	6,325	5,105	4,226	4,286
Controller	11,933	6,789	5,889	5,218	4,161	4,500
Auditor	8,949	6,213	5,791	5,107	5,230	3,640
Treasurer	9,327	5,930	5,241	5,039	4,173	3,617
Engineer	10,404	7,414	6,246	5,539	4,972	4,659
Director of Public Works	11,265	7,407	6,492	5,829	4,711	4,519
Superintendent of Streets	8,630	5,817	4,685	4,386	3,924	3,425
Fire Chief	9,643	6,595	5,514	4,978	4,350	3,622
Police Chief	10,283	6,830	5,498	5,107	4,438	3,714
Purchasing Agent	9,567	5,612	4,908	4,154	3,525	3,305
Planning Director	9,812	6,177	5,729	5,395	5,141	4,288
Chief Personnel Officer	8,801	5,916	5,291	4,785	4,426	3,981
Attorney	12,046	8,413	7,188	6,248	5,426	4,507
Health Officer	10,833	8,318	7,389	6,362	5,861	4,866
Superintendent of Parks	8,758	6,220	4,798	4,442	3,698	3,205
Recreation Director	7,654	5,236	4,876	4,440	4,108	3,763
Librarian	9,682	6,897	5,707	4,352	3,603	2,939
Superintendent of Schools	16,838	12,175	10,212	9,187	7,678	6,449

Proposed Regional Zoning Code for 13 Connecticut Communities

A FORWARD and progressive step in inter-municipal cooperation and regional planning and zoning has been taken in South Central Connecticut where thirteen communities banded together in a Regional Planning Authority have developed a proposed regional zoning code. The code was compiled over a two-year period by a committee, initiated by the New Haven Chamber of Commerce, and composed of representatives from each of the communities involved.

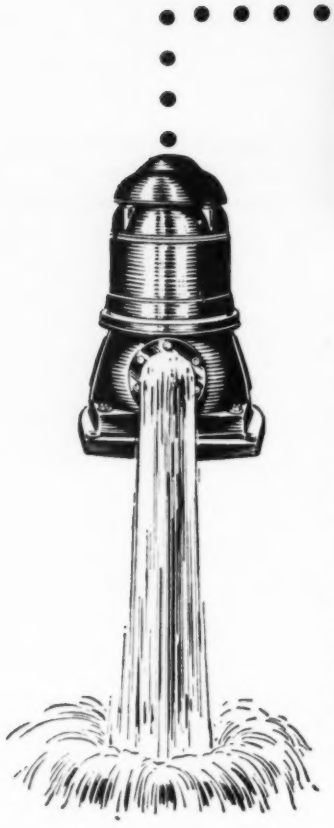
The purpose of the committee was to obtain a workable model zoning code, using uniform language and definitions, which could be used by all the municipalities. The finished proposed code is intended to be complete for the entire area, but additional provisions peculiar to the needs of a single community can be added to the zoning ordinance for that community.

Each community will use only portions of the code applicable to its own needs. The idea is that each can then prepare its own zoning map based upon its planning program and integrated with the zoning of its neighboring communities, particularly at municipal boundaries. The proposed code includes both use and density districts so that maximum flexibility and opportunity is provided for a community to develop a consistent, adaptable zoning pattern to suit its needs. Technical assistance on the drafting of the code was provided by members of the staff of the New Haven City Plan Commission.

THE AMERICAN CITY commends the representatives of the municipalities involved — Bethany, Branford, Cheshire, East Haven, Hamden, Milford, New Haven, North Branford, North Haven, Orange, Wallingford, West Haven, and Woodbridge. As the introduction to the report declares, "This is a typical example of economic cooperative participation as opposed to expensive individual community action."

W. Adam Johnson is the committee secretary, at 152 Temple Street, New Haven, Conn.

WE'LL STICK TO *Basic Ideas* IN DESIGN, CONSTRUCTION AND MATERIALS



It is a fine thing to propose wonderful theoretical ideas about well water systems and vertical turbine pumps, but Layne never ventures away from common everyday basic ideas. That fact may account for the world-wide use and popularity of Layne Well Water producing equipment. It certainly accounts for such things as high efficiency, rugged construction and good old reliability of operation. So until the impossible happens, you can be sure that Layne engineers and designers are sticking to basic ideas that always pay off in satisfaction to the user.

Of course Layne Well Water Systems are as modern as tomorrow, in that they are properly designed and then constructed of the finest tested and proved materials. Furthermore they are as accurate in precision building as modern tooling and experienced workmanship can make them. Their excellent qualities have set a standard by which others are almost always compared.

In buying a well water system, you naturally want a full dollar's worth of value. You want a maximum amount of water at a minimum of daily operation cost—plus freedom from breakdown and repair expense. Those requirements just about sums up exactly what you always get when you choose Layne Well Water Systems and Layne Vertical Turbine Pumps. Basic ideas never seem to change.

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The Layne Organization offers a complete service in the designing and construction of Well Water Systems, including surveys, water strata explorations, well drilling and pump installation. For further information, catalogs, bulletins etc. address Layne & Bowler, Inc., Memphis 8, Tenn.

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MUNICIPALLY SPONSORED

Dramatics Contests Can Be Successful

By RICHARD T. TORKELSON

DESPITE arguments to the contrary, dramatics contests sponsored by a municipal organization in medium-sized cities can flourish if properly handled.

As evidence, the Rock Island, Ill., Playground and Recreation Commission has completed its Marshall Dramatics Contest * for another year, the 18th in its history.

The event, which has become a tradition in this city of 55,000 is a competitive contest of one-act plays by amateur organizations. The shows are held over four consecutive nights in February with the final judging and awarding of trophies being completed after the last performance. And the entire sponsorship and staging is handled by a city office.

Many other cities that have launched contests of this type have had them gain in popularity for several years only to die quietly without remorse. Why then has the event continued to grow and expand from year to year in Rock Island?

The secret probably has many answers: the high quality of play production; the energies of the playground commission; the love of competition; the low admission prices, and the democratic rules by which the contest is operated.

Every year the contest comes to life in the same manner. The superintendent of the Commission, Mel H. Hodge, lays the preliminary groundwork in November by getting in touch with groups that have entered before: churches, veterans' organizations, civic clubs, women's clubs, and others. Then new organizations are approached and invited to submit an entry.

Organizing the Annual Contest

The contest is limited to the first 16 entries, so that it will not become so long and involved as to lose public interest. After the 16 aspirants have been procured, they are called down to the playground office in the City Hall to select their plays. During the years the Commission has collected a library of over 1,200 one-act plays to which frequent current additions are made.

Pictured above are representatives of the winning entries in Rock Island's 18th annual Marshall Dramatics Contest, as they received their trophies. Fourth from left is Mayor Melvin L. Mackay presenting the awards. Fifth from the left is Miss Claudia Webster, of Northwestern University, contest judge.

During the latter part of December the contestants, their plays chosen and casts selected, begin practice. Following the Christmas holiday lull, rehearsals and practice are held three or four times weekly. When practice is well under way, the Commission whips up public interest through newspaper stories and radio. The greater part of the public interest, of course, stems from the membership of the organizations entered.

Finances

General-admission tickets are printed and submitted to the participants to sell. They are priced at 30 cents apiece and the groups selling them may keep the money, which is an additional incentive. The Commission covers its overhead by selling reserved-seat tickets. General-admission tickets are converted to reserve status by an additional outlay of 18 cents, the money going to the Commission. The printing of programs and tickets is paid for by selling advertising space to Rock Island business houses.

The Commission rents the auditorium of the local high school for the four-night event at a cost of $200, and employs a judge at $150. Additional overhead expenses are the hiring of special help, and the cost of equipment, trucking, and taxes. The contestants select the judge by popular vote of their representatives. This year Miss Claudia Webster of Northwestern University, a critic of extensive experience, was chosen.

Staging the Performances

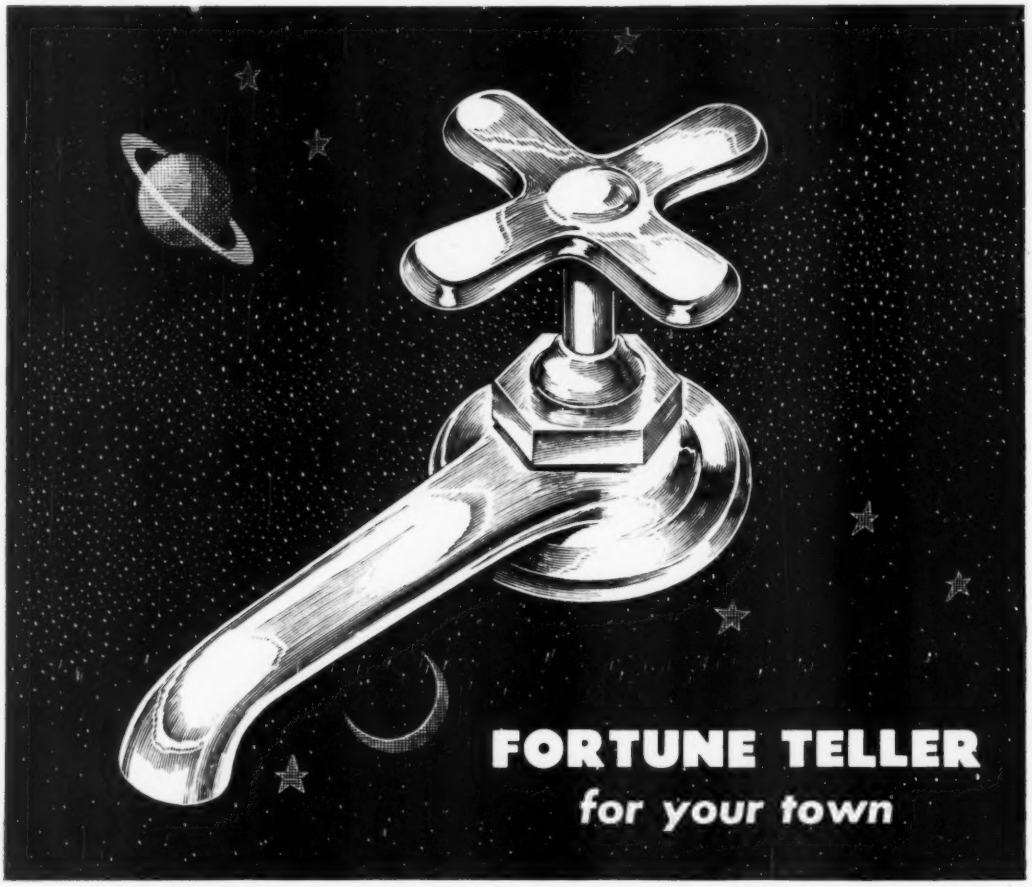
As opening night draws near, the competing casts are allowed a stipulated number of dress rehearsals, usually two, at the auditorium. Each troupe has had sufficient time to get its acting and timing razor-sharp. When the curtain is drawn for the first play, the 1,500-seat auditorium is packed. And it remains packed throughout the four nights.

Four plays lasting about a half hour each are given nightly, with organ music brightening the intermissions. The first play starts at 7:45 p.m., with the last performance ending about 10 p.m.

Five traveling trophies and two placques are awarded the winners. Honorable mentions are given several more. One of the trophies goes to the best individual characterization. The others are awarded entire casts. The Mayor makes the presentation.

Thus the contest comes to an end for the year. During its 18-year history in Rock Island, 87 different organizations and 2,195 persons have participated. There are few families in the city who have not had a member or relative entered or who have not seen some of the plays at one time or another.

* The contest gets its name from the president of the Playground and Recreation Commission, Mrs. W. H. Marshall, who has been identified with recreation work since its inception in Rock Island 25 years ago.



To have your town's fortune told, turn on a faucet. Water *hard*? Then your community may not prosper as it should. For industry shuns towns where there isn't an abundant supply of pure, soft water. Good water speeds up production, cuts operating costs, and raises product quality . . . benefits that no modern factory wants to miss!

The advantages and economies of soft water can be a deciding factor, too, in the flow of new families towards your town! Soft water makes every home cleaning job easier and lowers soap, fuel, and repair bills. Today, good water is a fundamental part of good city planning!

If your municipal water supply presents problems, why not consult Permutit? Our 35-year experience and full line of Water Conditioning Equipment can provide modern, *made-to-order* water for your town. Write for full information to The Permutit Company, Dept. A-6, 330 West 42nd Street, New York 18, N. Y., or to the Permutit Company of Canada, Ltd., Montreal.

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New Book Urges Dispersion

Analyzes Atomic-Bomb Effectiveness In Urban Areas

"LIKE life insurance, dispersion is protection against a disaster we hope will never come," declares Dr. R. E. Lapp in a new book, *Must We Hide?* * which outlines for the first time what the bomb can and cannot do if used against U. S. cities. Dr. Lapp, well-known physicist and authority on atomic energy, has worked on the atomic-bomb project from its inception.

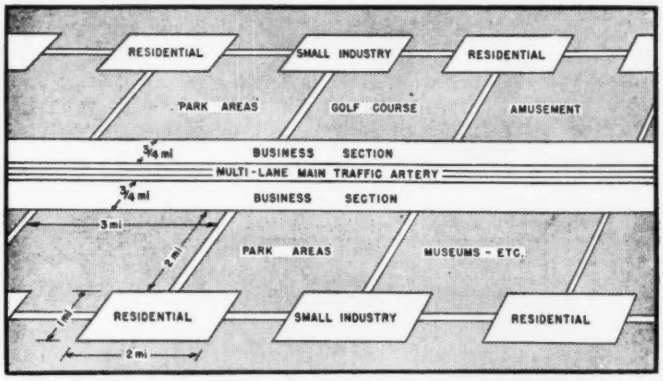
Dr. Lapp believes that the bomb will force a social revolution comparable in scope to the industrial revolution brought about by the introduction of steam and electric power. He states: "Now that the bomb is here and we are not certain that we can live in peace with our global neighbors, we must start at once to reduce our target attractiveness by dispersion, and if this is done properly we will at the same time greatly increase our urban attractiveness."

Although we cannot abandon our cities or scatter our centralized industries overnight without seriously disrupting our economy and our way of life, Dr. Lapp is of the opinion that population and industrial concentrations could be reduced so that in ten or twenty years there would be fewer lush targets for attack.

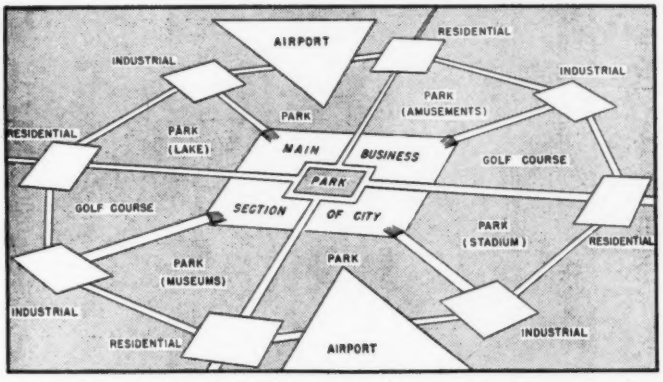
He suggests that an adequate decentralization program should contemplate the spreading out of industry and residences into closely knit but not highly concentrated units. The idea would be, as the charts on this page show, to spread out urban areas so that one or two bombs (estimated to cost $1,000,000 apiece) cannot destroy vital portions of the city. Segments of each planned city (whose optimum population he estimates at about 100,000, since smaller cities would be a poor investment for the atomic bomber), would be three miles apart, about the range of damage from the burst of the present bomb.

Dr. Lapp believes that successful dispersion must be planned but should be voluntary, not haphazard or forced. In his book he points out that at the present time the budget for national defense is about $15,000,000,000, and suggests that a decentralization program might be partially financed from defense appropriations, as a legitimate national-defense measure.

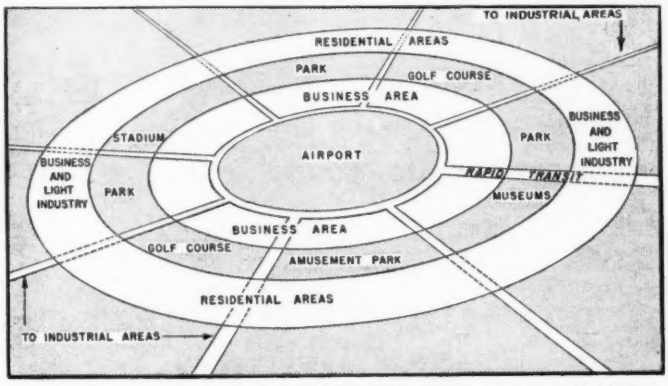
That the atomic bomb offers further opportunities for the improvement of living standards is revealed by Dr. Lapp's comment that atomic bombs do not obsolesce; they also have the unique characteristic of being redeemable for peacetime application in atomic power plants.



The rod-like city might make for a simple solution of the transportation problem if the physical features of the land permitted such a development.



The satellite city where individual units would be separated by three miles.



The doughnut city, in which the usual congested central area is replaced by a park or airport, with the important facilities located around the periphery.

* Published by Addison-Wesley Press, Inc., Cambridge 42, Mass. 1949. 182 pp. $3.

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Write—

Automatic Voting Machine Corporation

JAMESTOWN, NEW YORK

— *Since 1898* —

Naugatuck's Community Movie

FOR years the Chamber of Commerce of Naugatuck, Conn., had the same $64 question thrown at it: "What has Naugatuck got to offer?" This question is heard, at some time or other, in all towns of Naugatuck's size (population, 18,000), and in larger American cities.

"How about making a movie of our town to show the people what makes it tick?" asked Donald G. MacVicar, Chamber president, at a directors' meeting in February 1948. The directors agreed it was a good idea, but MacVicar, a live-wire executive of a small manufacturing plant, appointed a committee to work on the suggestion and report at the following meeting. The outcome of the committee's recommendations is a two-hour movie, "Inside Naugatuck," which the U. S. Chamber of Commerce has classified as the first comprehensive, amateur-produced film of its kind.

There are professionally made films of American towns and cities in which one or more phases of community life are depicted. There are, also, movies made by amateurs showing a few town activities. But "Inside Naugatuck" is different; no one associated with the film's production had any motion-picture experience. The only one compensated was Thomas Scally, a professional "still camera" photographer, who was assigned to his first professional movie job.

The entire cost, when a sound track is added to the 16-millimeter all-color movie, will be about $6,000. All costs are underwritten by the Chamber of Commerce, local merchants, and industrial firms.

For 10 months, Tom Scally shot 4,500 feet of film, catching 3,000 Naugatuckians at work, at play, and at study. He not only photographed scenes in the three huge plants of the U. S. Rubber Company, but also "invaded" the town's other 19 plants. Historic spots were filmed, as well as the usual Fourth of July celebration, service and community clubs, school graduations, Red Cross activities, Halloween parade, government departments, etc.

Elmer F. Schmitz, hardware-store proprietor and president of the Rotary Club, was the producer. He accompanied Scally on most assignments. Rev. Willard B. Soper, pastor of the Congregational Church, did the scenario while Dr. E. F. Scoutten, industrial relations supervisor at the U. S. Rubber Company, wrote the narration. A research staff of five men assisted.

Salem Playhouse was filled to capacity with 923 persons last December 9 when "Inside Naugatuck" was premiered. It was one of those gala events that comes once in a small town's lifetime. But there was more vocal enthusiasm two days later when a full theater of children shouted and cheered as they spotted relatives and neighbors on the screen.

The film has become a cherished community asset. It is being shown in schools, at club meetings, and in factories to tell Naugatuckians what their own town really is like and what things are done there. The Chamber of Commerce isn't through with the community enterprise. Scenes are being photographed from time to time to be spliced to the film "just to freshen it up for posterity."

SANDO BOLOGNA

Joseph P. Donahue, managing editor of the *Naugatuck News*, is seen interviewing Harold G. Kazanjian, treasurer of Peter Paul, Inc., and Movie Finance Committee member, at premiere showing of "Inside Naugatuck" movie.

Simplify Tax Work

(*Continued from page* 87)

arrive at the minimum operations that will result in the efficient collection of taxes. After this minimum structure has been arrived at, let every village, town, city and county argue with itself why it should retain a more cumbersome system. Where states require a more elaborate system, let the progressive municipalities demand that the streamlined method be permitted.

Having agreed on a minimum structure, the fewest accounting records essential to getting the taxes paid and recorded, the principal variations found in different municipalities can be set up, analyzed, and discussed under the heads of assessment records, taxpayers' ledger, tax bill. Many municipalities will feel that the way they are doing the work must be continued at all costs. This is largely because they have never seen or considered a basic, streamlined plan that has proved itself already in wide practical use.

The accounting-machine manufacturers can take such a report and fit their models to its operation in municipalities of all population classes from a few hundred taxpayers up. They can also prepare to meet the variations regarded as essential, by machine methods worked out to suit each.

The result will be a far better understanding of municipal accounting requirements by the accounting-machine manufacturers and a far better understanding of machines by municipal officials. Much of the headache of selling to municipalities should be eliminated and much of the uncertainty of which machine to buy should be removed. The final result should be quick mechanization of the municipal tax procedure.

Senator Vinck

(*Continued from page* 119)

"Through Benelux and in other ways, we smaller nations of Western Europe are trying to rebuild our democracies on sounder post-war foundations. We recognize that the political struggle in the world today goes beyond materialistic considerations, and that the restoration of a sense of civic responsibility rather than a further drift into municipal dependence on the state is essential to that effort."

"But, all over the world, democracy is conditioned by education, civic education. Democracy must be 'conscious,' and there is no 'consciousness' without education," the Senator concluded.

The International Union of Cities, which has the support of an American Committee in Chicago and of the U. S. Conference of Mayors in Washington, will remove its headquarters from Brussels to The Hague this year.

"Our Women and Children will walk in safety on streets at night

. . . thanks to our expanding Street Lighting System."

Says Mayor **Thomas A. Burke,**
Cleveland, Ohio

Carlyle Studios

"CIVIC accomplishment goes hand in hand with civic pride," says Mayor Thomas A. Burke of Cleveland, Ohio, "and we are justly proud of our new defense against accidents and crime through the medium of Cleveland's modern street lighting program."

City officials, under Mayor Burke's leadership, supported a bond issue for modern street lighting amounting to $3,250,000.00. During the recent election, the bond issue was endorsed by 74% of the voters . . . a significant reflection of public opinion in regard to the city's need for a planned street lighting program.

Mayor Burke is just one of hundreds of alert, conscientious city officials throughout America who have put public safety high on the list of community requisites. And through the installation of improved street lighting more and more cities are safeguarding the lives and interests of their townspeople.

FOR MORE FACTS
Write for your free copy of "A Planned Program for Better Street Lighting."

The Street and Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, N. Y.

Europe Sees "City of Democracy"

By SANDO BOLOGNA

GREENSBURG is an agricultural and business center of 7,200 population in southeastern Indiana, which is becoming known to many thousands of Europeans as the "City of Democracy."

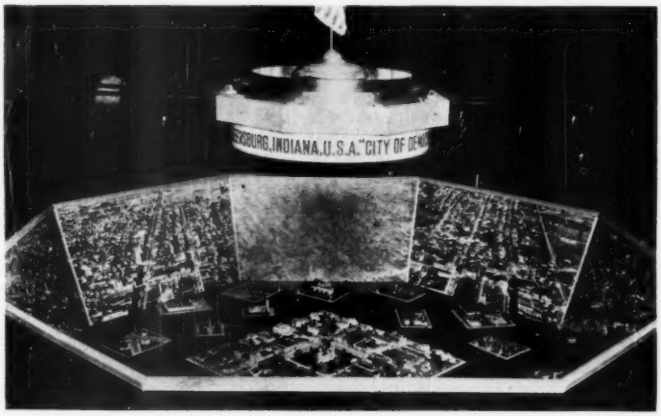
The American way of life in Greensburg is being depicted in various European countries by a scale-model display of the city sponsored by the Greensburg Junior Chamber of Commerce with the cooperation of the U. S. Junior Chamber of Commerce and the U. S. Department of State.

This 15-foot square model presents in wood and masonite a miniature nine-block section of the city's business district, including the Courthouse with its famous "Tree on the Tower." There are authentic copies of all buildings and houses in the area, plus replicas of 19 other important buildings. Photos taken by Air Force photographers lend an appropriate octagonal background to the display, valued at $10,000.

The display took more than 500 hours to make. It was designed for exhibition at the International Congress of Junior Chambers of Commerce held in Brussels, Belgium, from April 21 to 28. Prior to the convention, attended by young men from 21 to 36 years of age from 44 nations, the model was shown in London and Paris.

The State Department was so impressed with the lesson derived from the display that it requested permission to exhibit the model in other countries. Greensburg Jaycees had planned to take the replica to the annual national Junior Chamber convention in Colorado Springs, June 7 to 11, but they decided more good could be provided in behalf of democratic ways of life if it were left in Europe. It is now planned to exhibit the model at the Free University at Berlin and to 120,000 children in the American zone of Berlin. Eventually, the model and photos will be placed at the State Capitol in Indianapolis.

Greensburg was selected as the "City of Democracy" by Paul D. Bagwell, East Lansing, Mich., president of the U. S. Junior Chamber of Commerce. He based his decision on the "nicety of balance between industry and agriculture, its diversity of and devotion to religious activities, and the excellence of its educational and recreational facilities and program."



Here is a photo showing the model of the nine blocks of buildings comprising Greensburg's business district, and surrounded by replicas of 19 other important buildings, which is in the center foreground of the picture. Aerial photos are used to make an octagonal background for the display.

View of a portion of the Greensburg business district as it actually appears.

Community Support for Project

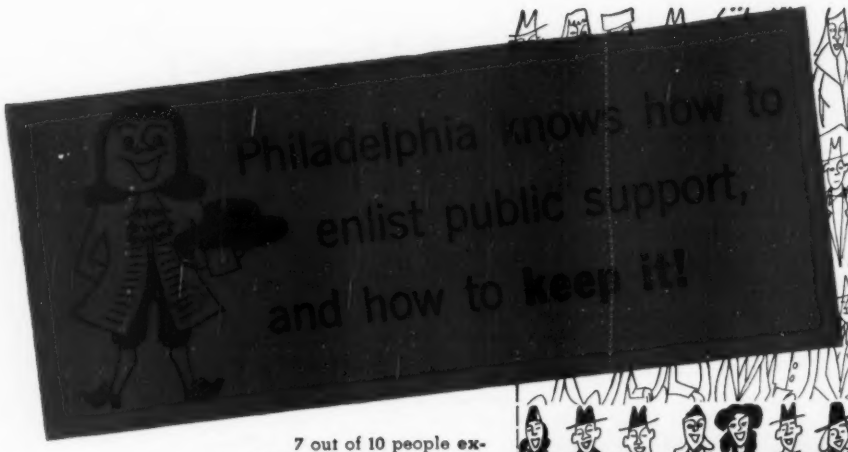
The people of Greensburg and of Indiana rallied to the support of the Junior Chamber in raising funds for the project. The Greensburg Chamber of Commerce and state agencies cooperated in the ambitious venture. Gov. Henry F. Schricker presented a "good government" award to Greensburg's mayor, Earl Woodward. Resolutions commending him were adopted by the Indiana Legislature. The U. S. Information Service then became interested in the project. When the model was first shown in Greensburg April 10, some 3,500 persons filed past it in eight hours.

Mayor Given Award

Mayor Woodward was given the award for his administration's improvements to city streets and public buildings, for installing parking meters, and for balancing the budget without additional taxation.

Greensburg is noted for its fine farms, farm buildings, progressive farmers, productive soil, pure-bred livestock, as well as healthful living conditions. It is the shopping, financial, rail and recreational center for a 35-mile radius, and is the county seat of Decatur County.

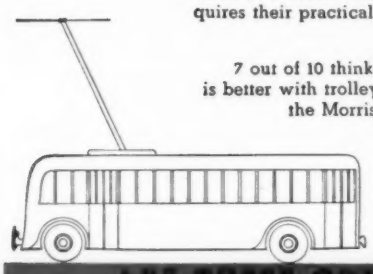
The model was constructed by the Displaycraft Studio of Indianapolis under the supervision of George Reed.

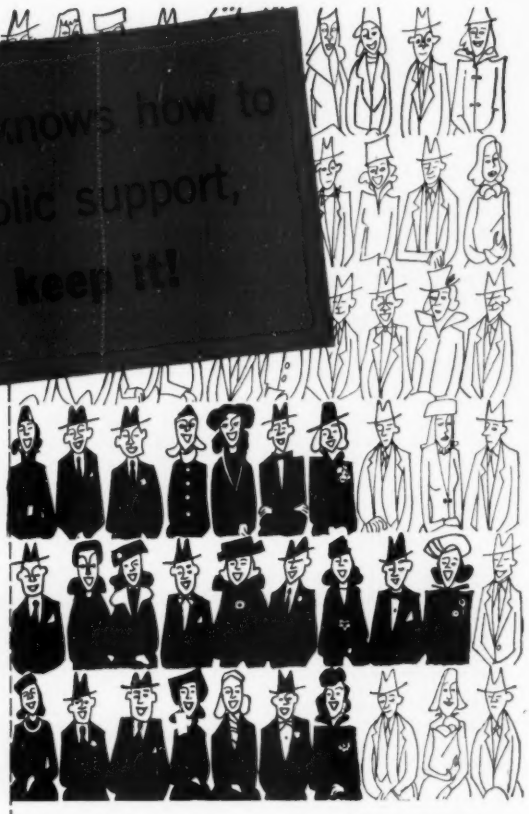


7 out of 10 people **expressing an opinion** in a city-wide survey* prefer electric transit vehicles—PCC cars and trolley coaches.

9 out of 10 **like** the new trolley coaches on the Morris-Tasker line† . . . where heavy traffic requires their practical application.

7 out of 10 think the **service** is better with trolley coaches on the Morris-Tasker line.



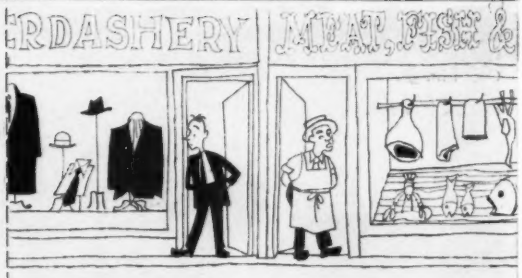


*1945, Opinion Research Corp. †1947, National Analysts, Inc.

ARE THESE CONDITIONS TRUE IN YOUR CITY?

"This traffic problem has to be solved!"

"And without spending millions for freeways and superhighways."



"All those cars and no customers! This neighborhood is blighted!"

PERHAPS YOUR CITY IS ONE OF THE HUNDREDS SUFFERING FROM TRAFFIC CONGESTION AND BLIGHT CONDITIONS. ELECTRICS ATTRACT MORE RIDERS AND COST LEAST TO OPERATE. PLEASE WRITE US. WE ARE ANXIOUS TO HELP. Apparatus Department, General Electric Company, Schenectady 5, N. Y.

GENERAL ELECTRIC

Traffic Control and Facilitation

Meet the New Plastic Street Sign

A PLASTIC traffic sign was sure to be developed sooner or later. The material has such inherent advantages that, if the design and construction are correct, the advantages of a sign impervious to corrosion and abrasion and of fast color would be obvious. The Police Department of Rocky River, Ohio, was given the opportunity to give such a sign a bad half hour, as the photographs show.

Besides the information which we gained first hand, the manufacturer gave us considerable background on the characteristics of plastic including the plastic material, classified as acetate butyrate, of which this sign is made. Consequently, having also had long experience with traffic signs in general, perhaps I can tell quite a story about the street and highway marker now offered by Columbia Sign and Signal Corporation of Cleveland, Ohio.

The purpose of the research which preceded the production of a marketable product was to develop a sign that would not have to be repainted or straightened from time to time, and that would withstand vandalism, salt air, and ultraviolet fading.

Acetate butyrate is flexible and resilient, and because it is a plastic, the color extends throughout the entire material. Scratches and abrasions are of no consequence and repainting is eliminated. With specialized paints, which also are classified as plastics, legends can be applied which become a part of the plastic sign itself.

Preparing the Signs for Use

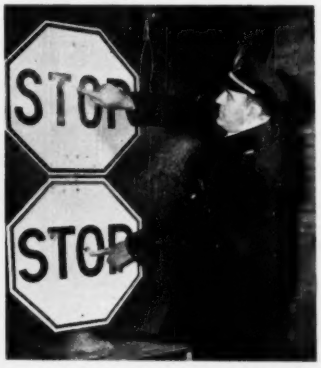
What does a police department or a traffic bureau need to know about the use of plastic signs? Sign shops employing paints which require even drying at temperatures of 300° will find that the new paints were at temperatures under 190° F. Above 200° acetate butyrate softens. These paints can be sprayed, silk-screened, rolled, or transferred.

When it comes to cleaning, brush on an ordinary detergent and rinse. Wire brushing will remove the dirt that is bound to accumulate over a long period.

Butyrate is reflectorized by the use of Prismo, Scotchlite, decals, or reflector buttons. Because the reflective coating is on the raw non-corrosive butyrate of the same color, abrasions of the reflector coat are practically invisible.

Before the firing tests Chief Cornish tried bending the plastic stop sign. Quite some effort was required, and the sign straightened out flat again. Then the shooting started with a 22-caliber pistol and 20-gauge shotgun using No. 6 shot.

The manufacturer tells me that weathering tests by laboratories have shown little change in the plastic material when exposed 24 hours a day for six months.



Lt. R. Kelly is pointing to the bullet holes, small and clean in the plastic.

Shotgun pellets bounced off the sign, merely leaving lead marks. Rifle slugs of 22 caliber leave a hole slightly smaller than the diameter of the slug itself. This hole can be mended by applying new material under heat, which bonds with the old.

ALBERT T. CORNISH
Chief of Police, Rocky River, Ohio

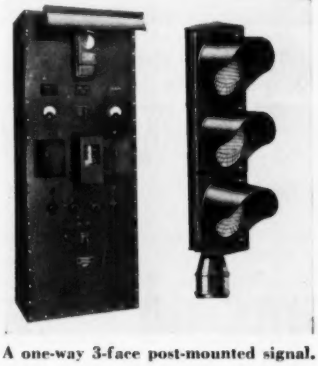
Traffic-Signal Flexibility in El Paso, Texas

By C. C. McNICHOL
Superintendent of Signal Systems

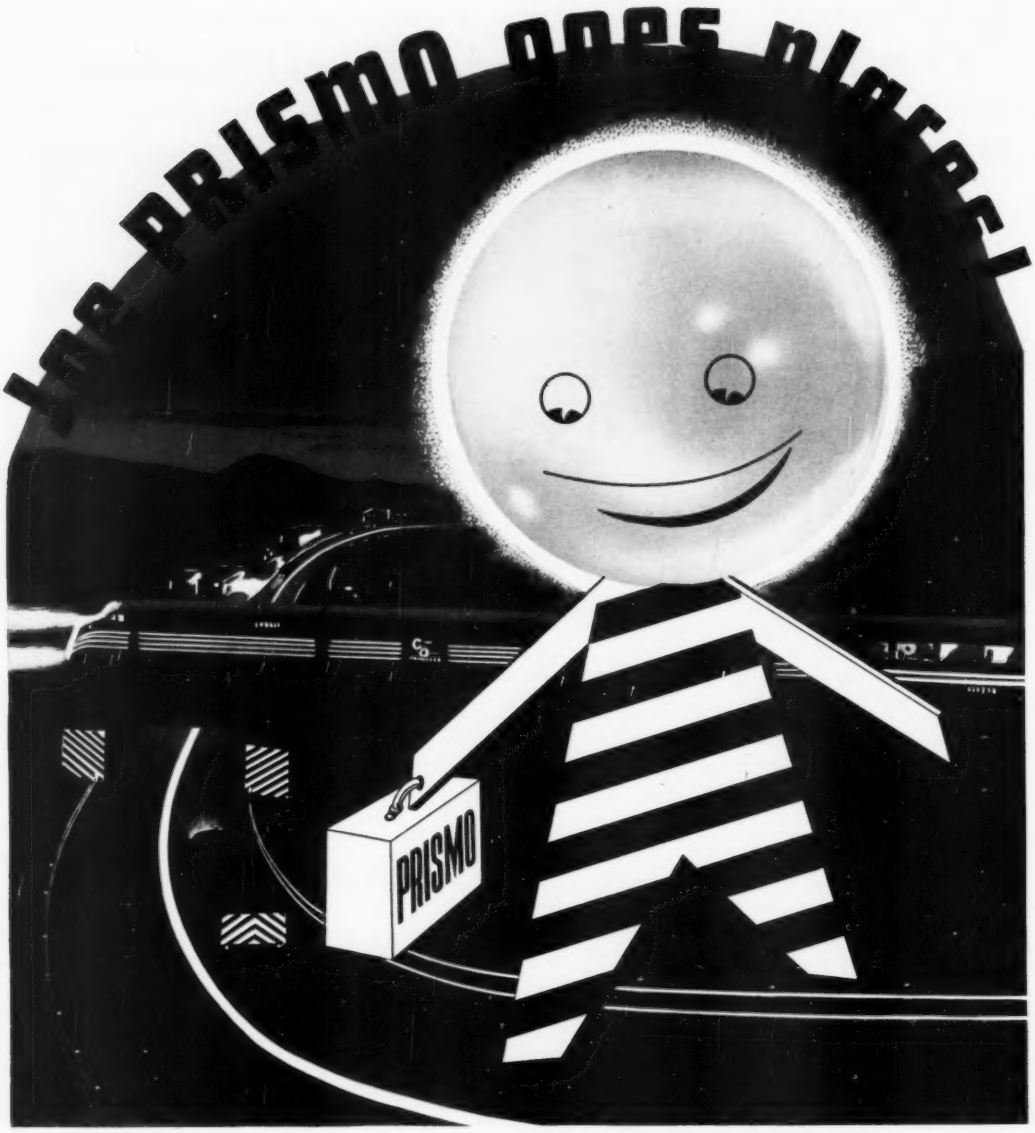
THE traffic-signal system of the City of El Paso, Texas, consists of 18 downtown interconnected intersections, 22 isolated intersections, and 32 two-section, four-way suspended flashing beacons. With the exception of the flashing beacons, which are located at the highway entrance to the city, all lights are mounted on pedestals and all wiring is underground.

The 18 downtown intersections are connected to a Crouse-Hinds master-con-

A masterboard and a typical controller.



A one-way 3-face post-mounted signal.



Prismo can go anywhere there's a reflectorization job to be done. Wherever there's a bridge abutment, guard rail, underpass wall or other permanent structures in the field that you want to be a guide by day and a guardian by night . . . go to it with the Prismo Sign Kit!

The Prismo Sign Kit is easy to transport. It's lightweight, compact and complete. And it's easy to use! Just apply the special Prismo binder with spray or brush. Then spray on the Prismo spheres with the Prismo hand gun. The job is done! You have a reflectorized surface that stays brighter longer and is visible at the widest angle of sight! . . . you have a structure that's on the job 24 hours a day to guide motorists safely over the highways.

Our fully illustrated bulletins show you how you can go places with the Prismo Sign Kit and save time and labor. Write for them today.

PRISMO SAFETY CORPORATION HUNTINGDON, PA.

trol board, on which two traffic masters are mounted, one in use and the other a spare. This board contains a time switch and program cylinder. By this means, it is possible to select any one of four total periods for different times of the day. The program cylinder provides for ten changes a day on each of the seven days of the week, and also operates the off-duty flashing amber, or shut-down circuits. It also has switches by which any one of the four total periods may be selected manually. Shut down, flashing amber, or all-red fire lanes may be obtained either manually or automatically.

Also mounted on the face of the board is a meter, calibrated in minutes of total period, by means of which it is possible to see at a glance which total period is being used. The meter also shows new periods to be set up without resorting to the use of stop watches to check period timing.

Of the 22 isolated intersections, one has a 3-dial controller which allows three different total periods to be selected at different times of the day automatically by time clocks mounted in the base of the timer cabinet. There is also a clock that controls the off-duty flashing amber. This timer and two others have a sequence that shows green, and a green arrow one-way while the other three directions are red, allowing for a heavy left turn that occurs at these intersections.

Two of the isolated controllers are at school crossings and operate as fixed-time signals while school children are using the crossings. At other times they revert to flashing amber on the main street and red on the cross street. However, there are push buttons mounted on each of the crosswalks that, when actuated, cause the signals to go through one complete cycle, returning to the flashing position mentioned above. The automatic feature of these signals is controlled by electrically operated time clocks mounted in the pedestal bases.

Where two or more isolated signals are installed, a block or two apart, one is used as a master to keep the other in step and allow progression at these intersections. All of the isolated intersections, with the exception of the three suspended flashing two-section four-way signals, have time clocks that place them on off-duty flashing, at the same time the interconnected downtown signals are similarly placed.

Zoning Code Should Require Truck-Loading Facilities

SIX and a half million trucks are moving an unprecedented tonnage of goods and produce today. On rural roads, freight movement by truck that has either its origin or its destination in a city now exceeds 63 billion ton-miles, an all-time high. Additionally, trucks carry practically all goods moved in wholesale and retail delivery in urban areas.

But urban congestion has also been augmented by these vast trucking operations that take place in our cities because of the lack, in part at least, of adequate terminal facilities for their loading and unloading activities.

Truck-terminal facilities may consist of centrally located, multi-million-dollar structures as are being planned and constructed by the Port of New York Authority in the New York-New Jersey metropolitan area; or they may be individual or multiple, enclosed or unenclosed, loading and unloading berths or platforms, located adjacent to or in the vicinity of specific commercial, industrial, or other establishments. This article deals only with the latter type of truck-terminal facility as required by zoning ordinances, building codes, or other local ordinances in connection with specific uses.

As of December 1, 1947, there were in the United States at least 66 local-government units in 28 states that had zoning or other ordinances requiring the provision of off-street truck-loading and unloading facilities in connection with various property uses. Of this total, 53 were cities, 4 towns, 4 villages, and 5 counties. It is significant to note that over two-thirds of the communities that have used their police power to cope with the truck-terminal problem have utilized the same device to require the provision of off-street automobile-parking facilities in connection with designated property uses.

Because local planning bodies are generally intimately associated with zoning objectives and are concerned with the over-all development of the urban community, they should be accorded the undisputed right to serve in an advisory capacity on matters relating to the provision of off-street loading and unloading facilities by means of zoning.

In addition to regulatory and advisory bodies, machinery for enforcement is almost invariably provided. In 27 instances the building inspector is named as the enforcement official. In six cities, it is the commissioner or superintendent of buildings; in three cities, the city manager; and in two cities, the zoning administrator. In the remaining instances, the enforcement officer designated is the city engineer; an official named by the mayor; the department of building and safety engineering; the commissioner of public utilities, grounds, and buildings; the street and sewer department, and a variety of others.

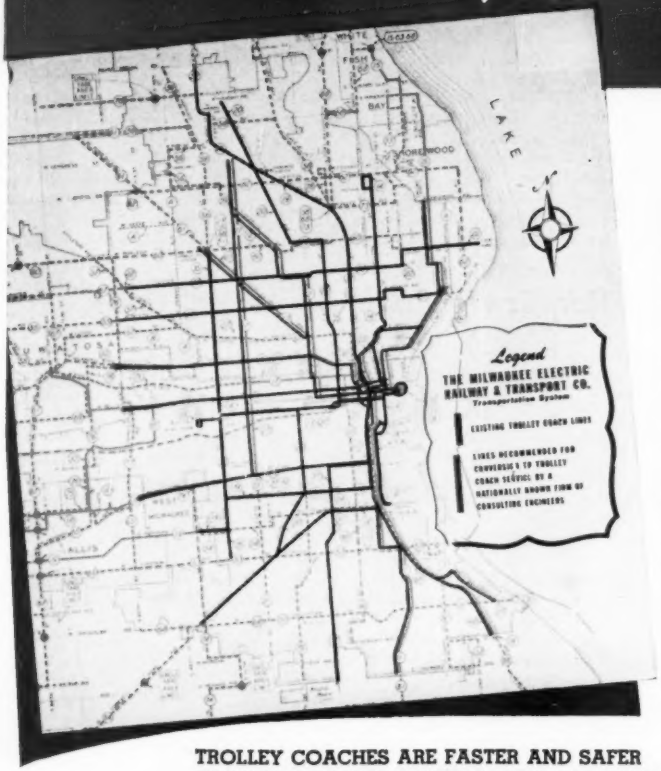
In theory, the use of zoning in providing off-street truck-loading facilities promotes the public health, safety, morals, and general welfare. This legalism can easily be translated into more tangible form.

To start with, the provision of off-street truck-loading facilities through the zoning mechanism is a positive, rather than a negative, approach to betterment of the urban community. For it stimulates the local citizenry to do what is right in the right place, rather than restraining them from doing the wrong thing in the wrong place. As such, it should be supported by city planners, highway administrators, traffic engineers, transportation authorities and others interested in a rational development of the city area. Truckers, shippers, consignees, and commercial and industrial interests will all be benefited by the adequate provision of off-street truck-loading facilities. Transportation costs will be lower, conges-

PHOTOS COURTESY OF AMERICAN TRUCKING ASSOCIATION (THE BIOW CO., ADVERTISING)

Left: Truck waiting to unload; car waiting. Right: Car blocked on two-way street while trailer unloads.

TROLLEY COACHES do a good job in MILWAUKEE


LAKE
Legend
THE MILWAUKEE ELECTRIC RAILWAY & TRANSPORT CO.
Transportation System
EXISTING TROLLEY COACH LINES
LINES RECOMMENDED FOR CONVERSION TO TROLLEY COACH SERVICE BY A NATIONALLY KNOWN FIRM OF CONSULTING ENGINEERS

ALTHOUGH 400 trolley coaches are now being operated in Milwaukee, it has been recommended that eight of the system's nine remaining rail lines be converted to this popular service. The recommendation was made by a nationally known firm of transit consulting engineers, engaged by city officials to make an extensive survey of Milwaukee's public transportation needs. In their report recommending that trolley coaches replace streetcars, the engineers stated that . . .

TROLLEY COACHES ARE FASTER AND SAFER
TROLLEY COACHES CONFLICT LESS WITH AUTOMOBILE TRAFFIC
TROLLEY COACHES ARE MORE ACCEPTABLE TO THE RIDING PUBLIC
TROLLEY COACHES INCREASED THE AVERAGE SPEED OF AUTOMOBILES 11%
TROLLEY COACH CONVERSIONS SHOWED AN AVERAGE RIDING INCREASE OF 49%
TROLLEY COACH SPEEDS ARE 17% FASTER
TROLLEY COACH LINES SHOW A 10-YEAR RIDING INCREASE OF 108%
TROLLEY COACH LINES ADD EQUIVALENT OF 9 FT. ADDITIONAL STREET WIDTH WHEN SUBSTITUTED FOR STREETCARS

TROLLEY COACH AND STREET
Ohio Brass
MATERIAL AND CAR EQUIPMENT
2957-T
MANSFIELD, OHIO
CANADIAN OHIO BRASS CO., LTD., NIAGARA FALLS, ONTARIO

tion will be alleviated. Property to which loading and unloading facilities are adjunct will be rendered more accessible thereby and, accordingly, will become more valuable.

For these many reasons, then, it is desirable for every urban community that has not already done so to amend its zoning code so as to require the reasonable provision of off-street loading and unloading facilties in accordance with the indicated needs of the respective property uses.

DAVID R. LEVIN. *Head Special Administrative Studies Unit, Division of Financial and Administrative Research, Public Roads Administration Washington, D. C.*

Glass-Beaded Traffic Paint

GLASS beads increase the night visibility of painted traffic stripes to a greater degree than other available materials. Smaller beads offer advantages in economy and service life over the larger sizes formerly used. With small beads the range in types of suitable paints is greatly extended since the special quality of high capillary rise around the beads is of less importance. Methods of test for paints for use with beads are the same with a few exceptions, as those used for plain traffic paints.

Beads were originally applied by gravity to the fresh surface of the stripe. This method, called "over-lay," has been succeeded in Washington by a "pre-mix" method in which the beads are mixed with the paint just prior to application. Beads are retained in the stripe, initially and during service, more uniformly when the pre-mix method is used. When striping machines are not well adapted to the use of pre-mix beads, the "fog-coat" method is used as an alternate. The fog-coat stripe is inferior to the pre-mix stripe in uniformity, but results in better bead retention than the over-lay stripe.

Data are given on the use of the pre-mix and fog-coat methods. Longer service life of these stripes makes them available economically for many roads not previously treated with reflectorized stripes.

Field brightness measurements of traffic stripes 6 to 8 months old, supplemented by later visual surveys, show that those applied by the pre-mix method retain a uniform and adequate degree of brightness throughout their life. The useful life of pre-mix stripes is considerably longer than that of a similar stripe without beads.

BAILEY TREMPER
Materials and Research Engineer
and G. E. MINOR
Assistant Materials Engineer
Washington Department of Highways

Parking Meters Foot the Bill for Many Municipalities

NO CITY is too big to be benefited by parking meters. How small a town can use them? Last year over 450 places with a population under 5,000 had parking meters. Of these, 150 were towns with a population of less than 2,500.

Since 1946, the curve of parking meter sales has been almost vertical. While doubling and redoubling of sales volume cannot go on indefinitely, already annual replacement business alone amounts to all the sales made in the first four or five years that meters were manufactured. On top of this is the extension of metering in the larger cities and new installations in the thousands of towns yet unmetered.

Nor has anything been said as yet of parking lots. For years municipal parking lots were an expensive convenience—in the comparatively few cities providing such lots. A couple of years ago 302 cities reported owning 622 lots. There are many more today and increasingly they are being paid for, policed, and maintained by parking meters. It has been parking meters that have made many of these lots possible and that have put plans for many more on the books. Off-street parking lots and garages are the ultimate measure in the relief of parking congestion. Parking meters loosen up the congestion at the curb. Off-street space takes care of the long-time parkers, and parking meters pay for the off-street space. This, as all manufacturers know, is another big parking-meter market that will be active for years.

Surveys for Niagara Thruway in Buffalo

CONTRACT for surveys and maps of the Niagara Thruway in Buffalo was let January 11 to Nussbaumer, Clarke and Velzy, Inc., of Buffalo for $77,000.

The plot to be mapped ranges from 900 to 1,200 feet in width and approximately two miles in length.

It is the purpose of the mapping to show all buildings, individual properties with boundary lines, names of owners, and location of streets. Accurate information will also be provided for all sewers, manholes, catch basins, water and gas lines and conduits for public utilities. Also shown will be the location of water hydrants, property service lines of all kinds and character, together with all other structures above ground on public or private property, including telephone, telegraph, and street-lighting poles, and railroad and trolley tracks.

A general map, drawn at a scale of 100 feet to the inch, will be prepared for the entire survey area. This will include the names of property owners, street lines, building outlines, and other lines necessary to portray the principal topographic features of the region.

A second set of maps of the entire survey area, drawn 50 feet to the inch, will show, in addition to data included on the smaller map, all structures and facilities, both above and below ground. For even more detailed information concerning four sections of the area, maps drawn to a scale of 20 feet to the inch will be prepared. Information is to be secured pertaining to five main-line railroad grade separations. The survey also crosses the classification yard of the Lehigh Valley Railroad and the team track serving the Niagara Frontier Food Terminal.

This work, under supervision of Bertram D. Tallamy, Superintendent of the State Department of Public Works, and District Engineer Charles R. Waters, is preliminary to preparation of detailed construction plans for this section of the Niagara Thruway.

Takes the Jerk Out of the Trolley

ELIMINATION of jerky starts and stops on modern trolley-cars is accomplished with this barrel-like Westinghouse electric accelerator that provides "99 steps to riding comfort" for passengers. When the operator steps on the accelerator pedal, the X-shaped arm revolves, the two wheels press down the 99 electrical contacts in rapid succession, and power is fed to the trolley's driving motors in "steps" so close together it seems like one steady surge. When the braking pedal is used, the process is reversed and the trolley is slowed to a stop quickly and smoothly.

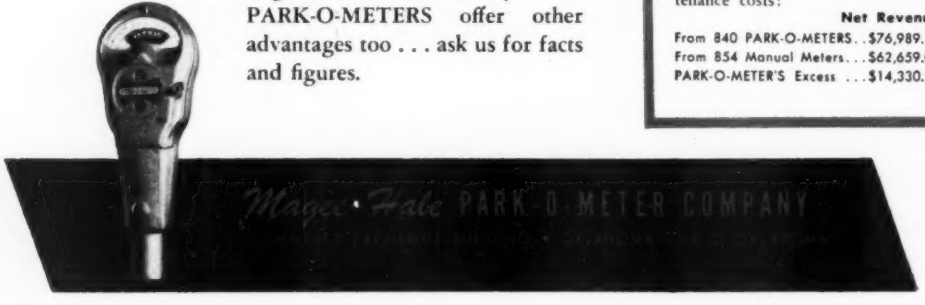
but it is only half of the story! Here is the rest of it: The Wichita installation comprises 840 *Automatic* PARK-O-METERS and 854 manual meters. Day after day, month after month and year after year since July, 1946, PARK-O-METERS have *collected more net revenue* than the manual meters EVEN THOUGH THE MANUAL METERS ARE LOCATED IN THE AREA CONTAINING THE LARGEST AND MOST IMPORTANT STORES AND SHOPS! The total difference in NET REVENUE during 1948 was $14,330.23 in favor of PARK-O-METER.

Won't you agree that if meters are to be installed they should be those that return the largest revenues to the city? And PARK-O-METERS offer other advantages too . . . ask us for facts and figures.

City Auditor ORAN WADSACK

The annual report of the Wichita city auditor shows the following parking meter NET revenues *over and above* collection and maintenance costs:

	Net Revenue
From 840 PARK-O-METERS	$76,989.29
From 854 Manual Meters	$62,659.06
PARK-O-METER'S Excess	$14,330.23



Outdoor Lighting

Modern White Ways

By A. F. DICKERSON
Manager, Lighting & Rectifier Division
General Electric Company
West Lynn, Mass.

IN BRINGING greater safety to our main thoroughfares through traffic-safety lighting, we have generally neglected our white ways. Most cities have white ways, but the lighting has been made obsolete by increased traffic and its requirements.

White-way lighting is quite distinctive from other street lighting. On certain types of streets, such as traffic arteries and residential streets, we are mainly interested in safety and convenience. Visibility is of prime importance. Our lighting systems on these streets are laid out for highest efficiency in well-distributed light on the pavement, but when we light business streets our measuring stick is satisfaction. Thus, along with getting the required light on the street for proper visibility, we must also light the building fronts to give the third dimension to the street. Over-all appearance is of prime importance on the business street and visibility is just one of the elements of the white way's needs.

On business streets it is not enough to provide only visibility to auto drivers and pedestrians. Merchants are interested in drawing customers to their street. Building owners who have spent large sums to make the facade of their buildings attractive in the daylight naturally want their beauty carried into the night. Thus their investments can be protected and even enhanced as the well-lighted street usually becomes more attractive at night than in daylight.

Why White Ways

Following are enumerated the principal reasons why white ways are put in:

1. *The first, and to many the most important, reason is that it increases business.* There is a well-known saying that "trade follows the light." It has been demonstrated in many of our cities, and even in small towns that white ways cause increased window-shopping and subsequent increased sales.

2. *It attracts out-of-town buyers and holds the business of the community.* People, like moths, are attracted to bright lights. Merchants on well-lighted streets vie with each other in respect to window displays and visitors are more likely to prolong their stays in brightly lighted towns.

3. *It creates a psychological impression of thrift and progress.* The New York State Department of Commerce has a bureau to advise ailing communities what to do to become more prosperous. The Number One recommendation is to brighten up Main Street and its shop windows.

4. *It builds up civic pride.* Everybody is proud of his white way whether he lives in a village or large city. Most white ways are inaugurated with fitting ceremonies that often attract thousands from nearby towns. At a recent white way opening in a Kansas town of 10,030 inhabitants, more than this number attended the ceremonies.

5. *It reduces fire losses.* A few minutes saved in reaching a fire and the fire-fighting efficiency that results from well-lighted surroundings may mean savings of thousands of dollars.

6. *It assists the police department.* Crime and robbery are seldom associated with well-lighted streets. It has often been said that a street light is worth two policemen.

7. *It assures safer traffic flow.* On the well-lighted street, cars can move speedily with more safety and pedestrians are clearly visible and more fully protected.

8. *It improves the sanitary condition of streets.* Pedestrians seldom discard refuse on well-lighted streets. Light also assists in the quick and effective cleaning of the pavements after the traffic has subsided.

9. *It promotes other improvements.* Light shows up poor building fronts to such a disadvantage that improvements go hand in hand with white-way lighting. Two symmetrical rows of well-designed lighting standards are of great assistance in themselves in improving and unifying the architectural tone of a business street.

10. *It stabilizes or increases real-estate values.* As business increases, so does the value of the property involved. In some instances merchants and property owners, in their great desire to have more light, have assessed themselves for it. Usually, however, the administration appreciates that white ways are municipal obligations and votes the necessary money for them.

11. *It attracts industries.* Industries are attracted to live, wide-awake communities—the kind that has good street-lighting.

12. *White ways show the progressiveness of both the local businessmen and city administration.* White ways don't just happen. They result from good planning and outstanding initiative on the part of both the businessmen and the city officials. The white way is the community's show window and a clear indicator of the progressiveness of those who run the town.

Classifications

There are several grades or classifications of white ways. It has been customary to classify them on the basis of foot-candles of pavement illumination. While this method will be followed here, the importance of building-front illumination in the make-up of a satisfactory white-way effect must not be overlooked. When pavement brightness is built up at the expense of background illumination, a hard, harsh, tunnel-like appearance is given to the street which very definitely will not yield the many expected benefits from white-way lighting.

With the understanding that luminaires will be chosen which will deliver the proper balance of pavement and building brightness with the least objectionable glare, the following classifications of white ways are made:

Minimum White Ways — where the average illumination value is between 1.0 and 1.5 foot-candles. Such lighting is suitable for cities with a population up to 50,000. The village should have at least 1.0 foot-candle.

Intensive White Ways — where the average illumination value comes between 1.5 and 2.5 foot-candles. Such lighting is suitable for cities with a population up to 200,000 and even for most business streets in our largest cities.

Super White Ways — where the average illumination values are over 2.5 foot-candles. There are only eight

Presented at the National Technical Conference of the Illuminating Engineering Society, Boston, Mass., 1948.

If your city is not metered...

or if your present meters are obsolete...

or if your traffic flow needs greater guidance...

Ask to see these valuable CONTROL DEVICES

MILLER
The parking meter that is first choice all over America.
AUTOMATON
The amazing new parking meter that actually winds itself.
SCHOOL
ZONE
Duncan Safety FLASHERS
The all-electric traffic sign that commands greater attention and obedience.

Here are traffic control devices that set the pace others follow. Write today for illustrated catalog and details on how easily they can be purchased.

DUNCAN METER CORPORATION

835 No. Wood Street, Chicago 22, Illinois

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streets in this classification at present, but many more are being planned and several will have lighting values of the order of five foot-candles. These high values can well be justified on a purely commercial basis and for this reason future installations may just as likely be in small as large cities.

Recommendations

Most white ways today employ the upright globe-type luminaire which gives an approximately symmetrical distribution of light in all directions. The effectiveness of the lighting from such luminaires is usually very good, and perhaps no change in such systems can be justified now in those instances where pavement illumination is ample for present-day traffic requirements. The trend, however, is toward much higher pavement illumination, and to secure it with reasonable economy, modern pendant-type luminaires should be used.

Distribution—The Types III and IV I.E.S.-sponsored American Standard Practice distributions are suitable for white-way lighting, provided that care is taken to choose luminaires which give a reasonable percentage of upward light. On streets where one and two-story buildings predominate and lights are mounted at least 25 feet high, the small upward light (approximately 3% of lamp lumens) received from the refractor-type luminaire will suffice. As the buildings on a street increase in height and in importance from the appearance viewpoint, the percentage of upward lighting should likewise increase. Light above the horizontal may well be as much as 25% of the bare lamp lumens in special five foot-candle installations on business streets with high buildings.

In arriving at the percentage of upward light that can be justified, the general reflecting qualities of the building facades and the street pavement should be taken into consideration. For instance, excellent results can be secured with 10% or even less upward light if the buildings are relatively low and reasonably light-colored. Light and brightness from electric signs and show windows are of considerable consequence, but due to their lack of uniformity along a given length of street to be lighted, they should not unduly influence a recommendation. Streets with many low-mounted bright signs require more light than those without signs which interfere with vision.

Mounting Height.—Where the lumens of the lamp do not exceed 10,000, a 25-foot mounting height may be used. Lamps of 15,000 lumens and over should be mounted at least 30 feet above the pavement.

Spacing.—Business streets are usually of sufficient width to justify an opposite spacing of from 100 feet to 120 feet.

Lamps.—Lamps under 10,000 lumens seldom can be economically justified for white-way lighting. Modern pendant fixtures are available which will take up to the 1,500-watt, 33,000-lumen lamp. It is good practice to use one large lamp per standard to obtain the required illumination but the super white ways will usually need two large lamps per standard.

Mercury Lamps Used Now and in the Future

While most white ways now use incandescent lamps, the 16,000, 20,000 and 21,000-lumen mercury lamps are being, or will be, used in many installations. The neon signs and incandescent-lighted show windows on a business street tend to provide a color-balance for mercury street lighting, owing to its highly efficient and long-life lamp. It will very definitely play an important role in future business-street lighting.

Luminaires.—Conventional pendant luminaires are generally available to accommodate lamps up to the 21,000-lumen mercury lamp. Refractors and globes of varying densities provide both the Type III and IV distributions and modifications of these with increased upward light. One new white-way fixture of noteworthy design has recently been announced. It is for use with large lamps, including the 1,500-watt (33,000-lumen) incandescent lamp. By using two of these luminaires with 15,000-watt lamps per standard with an opposite spacing of 100 feet, an average of five foot-candles will be provided even on very wide streets. It can also be used with one, two, or three 400-watt mercury lamps or the 1,000-watt mercury lamp when it becomes a commercial product.

Forty Foot-Candles Instead of Eight for Miami's Orange Bowl

By ARTHUR E. DARLOW
Division Engineer
Department of Public Service, Miami, Fla.

LIGHTING on the playing field of the enlarged Orange Bowl municipal stadium of Miami, Fla., is being brought to 40 foot-candles by the addition of 100 new floodlights.

The original lighting consisted of four light towers on each side of the stadium located on the perimeter of a half-ellipse formed by the back of the grandstand structure. The top cross-arm was 110 feet above grade and the maximum distance from the sideline to the tower was 165 feet. The floodlight units were 1,500-watt narrow-beam enclosed lights having an approximate beam spread of 42 degrees horizontal and 35 degrees vertical. Fifteen of these units were mounted on each of the four center towers and 16 on each of the four corner towers. This gave an approximate over-all illumination of from 6 to 8 foot-candles.

Moved Four Center Towers

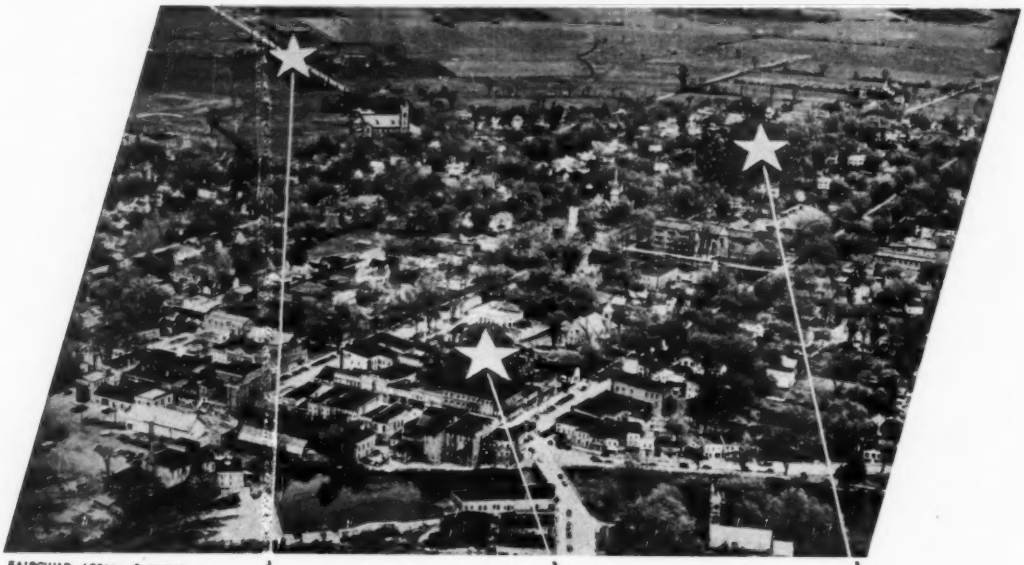
When the stadium was enlarged it was necessary to move the four center towers up to the back of the upper deck. The top cross-arms of these towers were placed at an elevation of 140½ feet above grade, and 217 feet from the sidelines. The four corner towers remained in their original position.

A temporary lighting system was set up on the towers which had been moved, and one additional cross-arm was added, making a total of three on these center towers. Eight additional floodlights were added per tower. These floodlights were Westinghouse narrow-beam enclosed Type VRC-18 with a beam spread of 31 degrees horizontal and 28 degrees vertical. Burning all lamps at 10% overvoltage, we had an average illumination of from 18 to 20 foot-candles on the playing field.

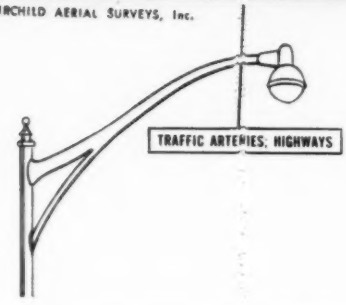
The recently purchased floodlights are to go on the four center towers, 25 lights to each tower. They will be new General Electric Company narrow-beam enclosed Type L-69 1,500-watt units with a beam spread of 28 degrees horizontal and 23 degrees vertical.

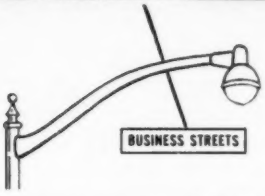
Each of the four corner towers will be equipped with sixteen Westinghouse narrow-beam enclosed 1,500-watt floodlight units. Eight units will have a beam spread of 31 degrees horizontal and 28 degrees vertical. Eight units will have an approximate beam spread of 42 degrees horizontal and 45 degrees vertical. When this system has been completely installed and is operating at a 10% overvoltage, the average illumination over the field is expected to be 40 foot-candles.

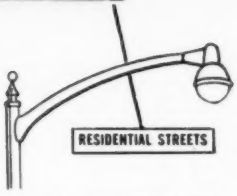
Standardize on HOLOPHANE REFRACTORS for Every STREET LIGHTING APPLICATION

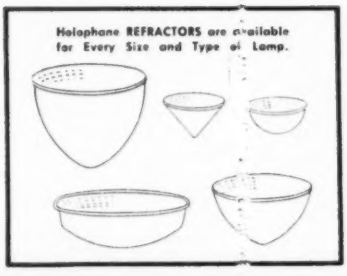


FAIRCHILD AERIAL SURVEYS, Inc.









STREET LIGHTING REFRACTORS are made for all TRAFFIC CONDITIONS . . . ALL MOUNTING APPLICATIONS . . . ALL TYPES OF THOROUGHFARES

HOLOPHANE now furnishes a wide variety of modern STREET LIGHTING REFRACTORS. These are available for narrow and wide thoroughfares . . . for every kind of traffic condition . . . and for all job mounting applications.

STANDARDIZE on REFRACTORS . . . They provide more visibility for every dollar spent. The more efficient light control of the HOLOPHANE REFRACTOR puts the light where it is most needed on the street—building up pavement brightness with greater uniformity of distribution. The net result is better street lighting, in terms of less night accidents and deaths, improved civic safety conditions, and more pride in the community.

HOLOPHANE COMPANY, Inc.

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THE HOLOPHANE COMPANY, LTD., THE QUEENSWAY, TORONTO 14, ONTARIO

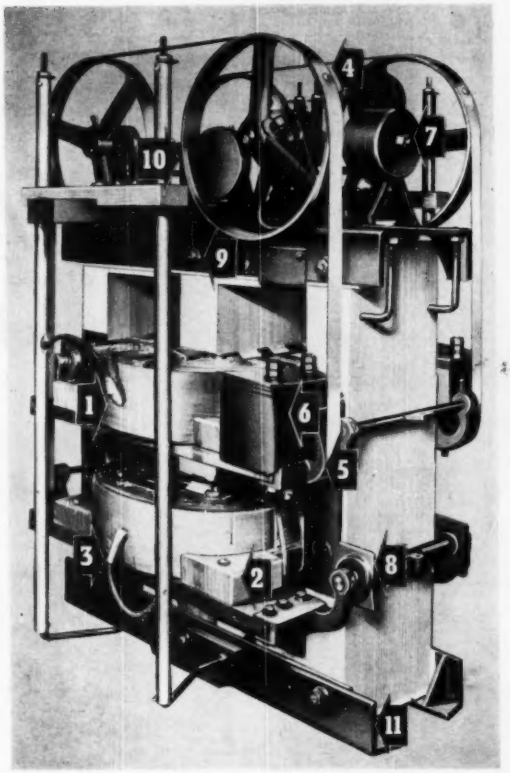
GOLDEN JUBILEE — Holophane — SINCE 1898 — SCIENTIFIC ILLUMINATION

How Constant Current Transformers Keep Street Lights Steady

CONSTANT-CURRENT transformers are designed to maintain normal rated lamp current on series street- or highway-lighting circuits under varying conditions of loading, primary voltage, and frequency. Externally, constant-current transformers look like any other type of transformer. The interior assembly, however, differs greatly in that constant-current-transformer windings must be able to move and adjust themselves to the load, whereas windings on other types of transformers are stationary.

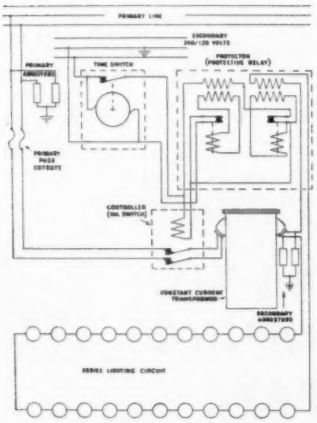
Lamp life is greatly reduced when there is small increase in current above rated values. Light output decreases rapidly as the current is reduced below normal rating. The transformer must provide very close regulation of secondary current and respond quickly to changes in load, primary voltage, and frequency, in order to provide maximum lamp life at full rated light output.

The diagram shows a typical installation in which the transformer is automatically energized and de-energized by means of a time switch having an astronomical dial which compensates for the daily changes in sunset and sunrise times. A photoelectric cell control is frequently used in place of the time switch. The time switch contacts close to energize a solenoid in the controller or oil switch. This closes contacts which cause the primary winding of the constant-current transformer to become energized, resulting in the lighting of the lamps in the street-lighting circuit. One branch of the circuit between the time switch and the controller passes through a set of normally closed contacts in the protective relay or protector.



Anatomy of a Moloney constant-current transformer.

This transformer features double-moving-coil design, with coils parallel to each other under all conditions of load. This provides accuracy of regulation and rapidity of response to load changes. 1. Both coils move on Moloney transformers, but only half the distance required of the single-moving-coil type, with quicker response and longer lamp life. 2. Coils are rigidly blocked on firm supports, to maintain accurate alignment. 3. Flexible leads avoid breakage and interruptions of service. 4. Stainless-steel bands hold the coils parallel. 5. Special clamping arrangement anchors the bands to the coil mountings. 6. The main weights which equalize the repulsion between primary and secondary windings are securely attached to free end of the top coil support. 7. Auxiliary weight is factory-adjusted for the rated current. 8. The coil supports are hinged on ball bearings. 9. The core legs are bolted to provid a mechanically strong core structure. 10. Top of core-clamping structure permits easy inspection. 11. Sturdy metal core clamps. Bulletin S1-701 from Moloney Electric Co., St. Louis 20, Mo., describes the transformers, with illustrations.



A series street-lighting circuit.

The protective relay de-energizes the constant-current transformer in the event that the street-lighting circuit opens for any reason. This eliminates the possibility of contact with high voltage on exposed secondary wires.

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Announcing

Heavy-Duty AK-14's

FOR UNIVERSAL HEADS

For the first time—a heavy-duty unit built to the proposed EEI-NEMA standards! Now, this de luxe, heavy-duty luminaire can be mounted on heads built to these industry standards. This broadens the scope of system standardization.

This is but one of many features of the Westinghouse AK-14 Luminaires—designed to meet Types IV and V light distribution patterns. They are available in different wiring and mounting methods and meet the requirements for multiple, low-voltage or high-voltage series service.

Write today for the complete description of the NEW AK-14 luminaires, B-4237, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa., or call your nearest Westinghouse office.

J-04243

ONE of thousands of combinations of this famous "AK family" will be the right choice for your street lighting needs. Standardized, completely-interchangeable parts for low-cost, modern public safety lighting. Lighting Division, Westinghouse Electric Corporation, Cleveland, Ohio.

Westinghouse

PLANNED LIGHTING PAYS

Cincinnati Completes Master-Plan Project

ONE of the most comprehensive and ambitious master-plan projects ever undertaken by a major U. S. city has come to a successful conclusion with the publication by the Cincinnati City Planning Commission of its report on the Metropolitan Master Plan.* The Plan was adopted by the City Council on November 22, 1948.

Based on more than four years of work by a special Master Planning Division functioning under the Commission itself, the Master Plan is dedicated to the memory of the late Alfred Bettman, eminent lawyer and city planner who helped forge new planning tools and techniques. Mr. Bettman had served as a member of the Commission since 1926, and as its chairman from 1930 until his death in 1945.

Cincinnati's long experience in city planning, as summarized in the report, may be of interest to other cities. In 1925, Cincinnati was the first city of its size or larger in this country to adopt an official city plan. Two of the most experienced and expert American city planners of that day—George B. Ford and Ernest P. Goodrich—were responsible for its preparation. But the movement which culminated in the 1925 plan began in 1915 when the United City Planning Committee, a federated association, was formed by representatives of some of the major civic organizations. The Committee, as its first project, secured the passage of a general city-planning law in Ohio which later furnished the basis of the city-planning provisions of the Cincinnati Charter adopted in 1926. Since the passage of that law, the city has had a continuously functioning city-planning commission with full planning powers.

In preparing the new Master Plan to keep abreast of technological developments since the 1925 Plan, it was recognized that sound development for a city must embrace the whole of the area that constitutes the social and economic community. One of the first steps was to form a Metropolitan Planning Committee composed of representatives from all the various governmental units involved, although the City of Cincinnati voluntarily assumed all costs and responsibility for the metropolitan master plan. It is expected that systematic contact and consultation with local officials in the area will continue as the plan is carried into execution.

In its foreword to the report, the City Planning Commission pointed out that every precaution had been taken to insure that the master plan represented the wishes, needs, and hard work of enough officials and citizens so that it would be fully effective. It mentioned the work of the Citizens' Development Committee, and recommended that every organization of citizens, property owners, and businessmen designate standing committees to study the problems of the area, and instruct and authorize the committees to transmit their views and cooperate with the Commission in the plan's future development and revision.

The Commission emphasized its determination to keep the Master Plan dynamic in these words:

> It is a well-known fact that many cities have spent large sums of money in the preparation of plans only to permit those plans to be filed away in some dusty corner of the City Hall and forgotten.
>
> One reason for such a fate for otherwise valuable plans is that those cities merely bought a package of plans instead of adopting planning as a continuous and regular approach to their civic problems. Planning, like every other phase of government, is never finished. There is nothing final about a Master Plan. It is a reviewing stand in a continuous job of planning. . . . It should be at all times constantly sensitive to the wishes and needs of the people in a changing world.

* Reports previously issued are as follows: Population, Economy of the Area, Communities, Residential Areas, Industrial Areas, Motorways, Public Transit, Public Service Facilities, Recreation Areas, Railroads, Airports, Riverfront Redevelopment, Parking, and Wholesale Produce Market. The reports are all available at various prices from the Cincinnati City Planning Commission.

Leading Industrialists Head National Civic Bodies

Herman W. Steinkraus New President of Chamber Of Commerce of the United States

AT ITS annual meeting last month the Chamber of Commerce of the United States elected as its president Herman W. Steinkraus, president of the Bridgeport Brass Co., of Bridgeport, Conn. Mr. Steinkraus is also president of Noranda Copper and Brass, Limited, of Montreal, and vice-president of the Copper and Brass Research Association.

Other companies of which Mr. Steinkraus is a director include the Carrier Corporation, Syracuse, N. Y., and the Bridgeport Hydraulic Company, First National Bank and Trust Company, and Bridgeport-People's Savings Bank, all of Bridgeport.

Mr. Steinkraus' cultural and civic interests include the Connecticut Symphony Orchestra, of which he was a co-founder and the first chairman; the chairmanship of the Committee on Manpower for Connecticut during the war, under Governor Baldwin; and the presidency of the United Community and War Funds of Connecticut for one year. In recent years he has been serving on a number of national committees concerned with industrial and labor relations.

W. A. Roberts New President of National Council for Community Improvement

THE National Council for Community Improvement, with headquarters at 1760 K Street, NW., Washington, D. C., announces in its monthly bulletin, *Community Cooperation*, the election as president of W. A. Roberts, executive vice-president and a director of the Allis-Chalmers Manufacturing Co., of Milwaukee, Wis.

Mr. Roberts is also past president of the Farm Equipment Institute; a director of the West Allis (Wis.) State Bank; and regional vice-president of the American Road Builders' Association.

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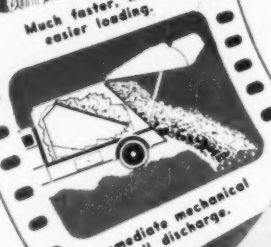

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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.

Off-Street Parking Facilities—Michigan

MICHIGAN. *Parr* v. *Ladd*, 36 North Western (2d) 157 (Michigan Supreme Court, February 28, 1949).

In this case the Michigan Court upheld the right of a village in that state to issue bonds, in order to finance the development of a large off-the-street parking lot in the center of town, as part of the development of a unified municipal parking system. Parking meters were installed both on the streets and on the lot. Since lawyers frequently have to prove obvious points by citing judicial authority therefor, it is worth noting that the opinion contained a good reference to the obvious fact that streets are usually not laid out to meet the needs of present-day motor traffic.

Power Lines Required Underground—Zoning

MARYLAND. *Kahl* v. *Consolidated Gas, Electric Light and Power Company of Baltimore*, 60 Atlantic (2d) 754 (Maryland Court of Appeals, July 20, 1948).

A proposed overhead transmission line to meet an allegedly urgent power shortage in Baltimore has resulted in several years of controversy and litigation. After zoning provisions affecting the power lines were adopted by Baltimore County in 1945, the power company laid out the proposed lines and acquired rights of way covering a seven-mile stretch, outside the city limits but in the metropolitan area. The proposed line was to cross a series of farms, not very close to any of the houses, and at one point would apparently seriously affect the scenic beauty of a lovely valley. As a result of vigorous agitation by the landowners in that valley, a zoning amendment adopted by the county in 1946 required all large-scale power lines in the metropolitan district to be constructed underground, unless a special exception was granted by the Zoning Commisioner. Under the amendment, the Commisioner, in passing on an application for an exception, was instructed to consider the proximity to schools and churches, the effect on fire-fighting, and the crossings of heavily traveled highways—and was required affirmatively to find that the overhead line would not impair health, safety or welfare, before granting an exception. The comparative cost could also be taken into consideration, although this factor was not itself to be sufficient reason to require issuing a permit. The Public Service Commission approved this proposed power line, on the ground that the costs of underground construction would be prohibitive. No application was made for a special permit. The present action by the landowners to enjoin construction of the proposed line was taken through an exhaustive trial, in which the plaintiffs disputed the alleged costs of underground power lines, and the company raised the defense that the zoning amendment was unconstitutional. The Maryland Court remanded the case and held that the question could only be decided in an appeal from a decision of the Zoning Commissioner.

In the opinion the zoning regulations limiting overhead power lines in the county adjacent to the city were first upheld as a reasonable measure, particularly to keep free the streets in the expanding metropolitan area. While the area was still rural, the city and county were frequently undistinguishable in character. In a lengthy discussion of the pressure brought by the landowners to get the amendment passed, the Court treated it simply as a case of responsiveness to public opinion and held that a valid ordinance was not rendered invalid by public support. The Court then held that the Company should have applied to the Zoning Commissioner for a permit under the ordinance, and remanded the case for such proceedings.

In a dissenting opinion two judges argued in favor of by-passing the administrative remedy and passing judgment on the constitutional question as a defense in the injunction suit. Their opinion naturally emphasized the special-legislation aspects of the amendments and their effect in increasing the cost of power.

Laundry Collection Service In Residential District

NEW JERSEY. *Siegel* v. *Board of Adjustment of City of Newark*, 137 New Jersey Law 423, 60 Atlantic (2d) 626 (New Jersey Supreme Court, July 22, 1948).

In what is apparently known in the laundry business as a "drop," an overall cleaning company collected overalls in Newark and mended them in a former residential building converted for that purpose; the overalls were then picked up in the early morning by trucks of another concern and taken to Brooklyn for cleaning. A former residential building, situated in a residential zone but not far from a business zone along South Orange Avenue, was painted orange, and sewing machines were installed for the mending; and a 45-foot space between the building and the street was filled with concrete and used for constant loading of trucks. When the cleaning company sought a variance to permit the building of an additional one-story structure in the 45-foot front yard to facilitate loading operations, the neighbors protested vigorously, and the Newark Board of Adjustment denied the application. The company appealed, arguing that the new building would make it possible to reduce the amount of disturbance. However, the Court held that the existing use was a flagrant violation of the zoning ordinance, and that the denial of the application was not arbitrary.

Residences in Rear Yards—Conversion of Servants' Quarters to Apartments

KENTUCKY. *Moore* v. *City of Lexington*, 218 South Western (2d) 7 (Kentucky Court of Appeals, December 7, 1948).

In 1881 a large brick house was built in Lexington, near the front of a lot which measured 77 by 210 feet and ran back to a 10-foot alley. At the same time a brick carriage house was built at one of the back corners of the lot, adjoining the alley, with quarters upstairs for the coachman. Eventually the main residence was converted into four apartments; the carriage house became a garage, and the three rooms above it became servants' quarters and were eventually abandoned. When the Lexington zoning ordinance was passed in 1930, rear buildings were forbidden to be used as residences (except by domestic servants) unless they conformed to two requirements — first, that they have either street frontage or an easement of access 15 feet wide, and second, that they have side and other yards. In 1945 this tract and both buildings were bought by a new purchaser, who later sought permission to renovate the quarters over the garage for an apartment, which was expected to rent at $75 a month. An application made in 1946 for a variance on the ground of hardship was denied by the Board and by the courts.

In the opinion the Court first held that the terms of the zoning ordinance made the building non-conforming, and so forbade its alteration for residential use except by servants. The restrictions on rear dwellings, and the exception for servants' quarters, were also upheld as constitutional. The Court noted that the proposed conversion might increase congestion, and was apparently concerned over the possible "undesirable tenants." The Court then held that the proposed change from servants' quarters to a rental apartment involved a substantial change, so that the prohibition of the ordinance was not retroactive. The Court also made the obvious holding that the inability to obtain additional revenue by renting the quarters over the garage did not constitute hardship.

In a dissent three judges argued that the proposed change to use by white tenants rather than by colored servants involved no substantial change in occupancy, and that the decision was therefore a retroactive application of zoning and unconstitutional.

In discussing the owner's brief, the Court noted the arguments that the decision violated the Constitution of Kentucky and the Constitution of the United States, especially the Fifth Amendment, the Fourteenth Amendment, and the whole Bill of Rights. The Court then added quietly:

"No mention is made of the Magna Carta."

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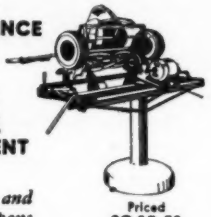

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Amusement Devices—Applicability of Slot Machine Statute to as Gambling

Where coin-operated pin-ball machine ejects balls by plunger and they strike bumpers on board, resulting in higher score by striking certain numbers rather than others, and depends mainly upon hazard or chance of operator, held that such was "slot machine" as prohibited by slot-machine statute. *Prickett* v. *State*, 200 Pac. (2d) 457 (Okla., Cr. App., Nov. 24, 1948).

Bridges, Private—Authority of Town to Barricade

Where private bridge was in state of disrepair so as to constitute hazard to public visiting plaintiff's place of business on opposite side of town from town proper, held that court would not sanction use of bridge by directing removal of barricade erected by Town of Greenburg since erection of such barricade was administrative matter solely within province of town authorities. *Putnam Valley Lumber & Supply Corp.* v. *Duell*, 82 N. Y. S. (2d) 407 (N. Y. Sup. Ct., Westchester Co., July 14, 1948)

Buildings—Rat-Proofing Ordinance—Injunction Where Mere Apprehension Of Injury from Enforcement

In action against city to enjoin enforcement of ordinance requiring that certain structures be maintained in rat-resistive and rat-free condition, held that mere apprehension of injury should city enforce ordinance as to her property did not entitle plaintiff to interlocutory injunction. *Moore* v. *City of Tifton*, 50 S. E. (2d) 595 (Ga., Nov. 17, 1948). *Reh. den.* Nov. 30, 1948.

Building Permits—Revocation of After Issuance Because Violated Zoning Ordinance

In action against city for judgment declaring invalid city's action in revoking building permit for construction of additional floor to office building in residential zone, held that in issuing permit city acted in its governmental capacity and on finding that permit violated zoning ordinance, city could not be estopped from subsequently revoking permit. *W. H. Barber Co.* v. *City of Minneapolis*, 34 N W. (2d) 711 (Minn., Oct. 15, 1948). *Reh. Den.* Nov. 19, 1948.

Civil Service—Compulsory Retirement Of Employees

Where Mayor of City of San Francisco by proclamation in 1944 waived provision of city charter requiring compulsory retirement of civil-service employees at age of 70 and mayor's proclamation was revoked in October 1946, held that writ of mandamus was properly denied to employees who were compelled to retire and filed suit in September 1946 for restoration, since at time of judgment in 1947 petitioners were not entitled to positions. *Palmer et al.* v. *Wolff et al.*, 200 Pac. (2d) 167 (Cal. App., Dec. 3, 1948).

Contracts—Liability of City for Quantum Meruit Where Void Because Of Failure to Advertise for Bids

In action against town to recover on contracts for paving street and constructing lines, held that although contract was void because of city's failure to advertise for bids as required by statute for city contracts over $1,000, city was bound on quantum meruit for reasonable value of work, labor and material furnished by plaintiff. *Hawkins* v. *Town of Dallas*, 50 S. E. (2d) 561 (N. C., Dec. 1, 1948).

Firemen—Pensions—Working on Days Off Not Included as "Salary" for Computing Pension

Where firemen of City of Wilmington were entitled to two days off each month, but were given three days' pay if they worked on those two days, and firemen's pension statute authorized pension equal to one-half amount of salary at time of retirement, held that pay received by firemen for working on days off was not part of his "salary" on which pension was to be based. *State ex rel. Murray* v. *Riley et al.*, 62 Atl. (2d) 236 (Del. Super. Ct., Nov. 10, 1948).

Flood Control—Validity of Statute And Ordinance Providing for Condemnation of Land Within and Outside City

In action by taxpayers and property owners against city to enjoin condemnation of right of way for flood-control improvements, held that statute authorizing cities to issue bonds chargeable to land specifically benefited and balance, if any, payable by general tax levy upon city property as whole was not unconstitutional and city was authorized by statute to adopt ordinance and resolution condemning land both within and outside its corporate limits for such purpose. *Cow Creek Valley Flood Prevention Assn.* v. *City of Hutchinson*, 200 Pac. (2d) 299 (Kans., Nov. 13, 1948).

Gross-Receipts Tax—Validity of Ordinance Imposing on Selling Price Of All New and Used Cars

Where ordinance and resolution of city and school district imposed mercantile license tax on automobile dealers based on gross volume of business measured by adding together selling prices of all new and used cars, including trade-in and repossessed cars sold during taxable period, held that tax was applied uniformly to all dealers and did not violate any provisions of statute or constitution. *Allegheny County Motor Co.* v. *City of Pittsburgh*, 62 Atl. (2d) 64 (Pa., Nov. 17, 1948).

Loyalty Affidavits—Constitutionality Of County Program Requiring County Employees to Sign

In action against county and others to enjoin defendants from requiring plaintiffs to execute loyalty affidavits as employees of county, held that board of supervisors of county is authorized to investigate character, antecedents, and viewpoint of its employees so long as investigation does not touch upon political or religious opinions or affiliations of employee, and county may demand oath or require response to questionnaire without violating Federal or State Constitutions. *Steiner* v. *Darby et al.*; *Parker et al.* v. *Los Angeles County et al.*, 199 Pac. (2d) 429 (Cal. App., Nov. 12, 1948).

Parking Meters—Right of Fifth-Class City to Install

Where by judgment, city of fifth class was denied right to install parking meters on its streets, held, on appeal, that since no specific statute prohibits same, statute providing that city council of fifth class may do all things necessary to carry out state laws and enact and enforce all local, police, sanitary, and other regulations not in conflict with general laws, authorized city to adopt ordinance for installation of parking meters. *City of Falmouth* v. *Pendleton County Court et al.*, 215 S. W. (2d) 101 (Ky., Nov. 16, 1948).

Schools—Applicability of City Health Ordinance to Lunch Rooms in

In action by Health Commissioner of City of St. Louis for declaratory judgment declaring that Board of Education of same city is subject to all provisions of city health ordinance which requires permit from and inspection by city health commissioner for operation of all restaurants in city, held that statute giving Board of Education right to put in lunch rooms for school children does not exempt school restaurants from city regulation. *Bredeck* v. *Board of Education of City of St. Louis et al.*, 213 S. W. (2d) 880 (Mo., St. Louis App., Sept. 30, 1948). *Rer. den.* Oct. 29, 1948.

Streets—Cleaning of—Liability of City for Negligence Causing Damages

In action against city for injuries causing damages to plaintiff allegedly due to negligence of city employees while performing street-cleaning duties, held since such duties were governmental function, city was not liable. *Mardis* v. *City of Des Moines*, 34 N. W. (2d) 620 (Iowa, Nov. 16, 1948).

Streets—Parking on Privately Owned—Power of City to Regulate

On appeal from judgment finding defendant guilty of parking his automobile on privately owned street for more than one hour in violation of New York City traffic regulations, held, in affirming conviction, that under its charter city had full power and duty to control traffic on both public and private streets. *People* v. *Garland*, 84 N. Y. S. (2d) 72 (N. Y. Magis. Ct., N. Y. Co., Oct 26, 1948)

Streets—Vacation of by City to Aid In Industrial Expansion

In action against city to set aside city-council order vacating for public purposes portion of street, held that evidence supported finding that city council acted in good faith and solely in public interest to aid industrial expansion, notwithstanding industrial concern had paid expenses incident to abandonment of street. *People* v. *City of Pomona*, 198 Pac. (2d) 959 (Cal. App., Nov. 12, 1948).

Taxation—Exemptions on Property of Non-Resident Veterans

In action by state tax commissioner against Assessor of City of Waterbury for declaratory judgment determining whether city has right to grant property-tax exemptions to veterans not domiciled in state at time of induction or enlistment held that within meaning of statue such exemptions were for public purpose and extended to soldiers, sailors, national guard, and merchant marine veterans whether domiciled in state at time of induction or not. *Walsh* v. *Jenks*, 62 Atl. (2d) 773 (Conn., Nov. 23, 1948).

Taxicabs—Airports—City Granting Exclusive Contract

In action against city to have contract, allegedly granting monopoly on business of transporting passengers to and from city airport, declared unconstitutional and to enjoin city from interfering with plaintiff operating taxicabs to and from same, held that since plaintiff failed to allege and show that airport from which its taxicabs were prohibited was within city limits, or that it had been denied right to operate taxicabs under its license upon city streets or that its license included privilege of operating upon airport property, injunction would be denied. *Associated Cab Co.* v. *City of Atlanta*, 50 S. E. (2d) 601 (Ga., Nov. 17, 1948). *Reh. den.* Nov. 30, 1948.

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The Municipal Bond Market

By FREDERICK L. BIRD
Director of Municipal Research
Dun and Bradstreet, Inc.

A SOMEWHAT anomalous situation had developed in the municipal bond market in the latter part of May when this article was written. While municipal bond prices had continued their rise, the accumulation of unsold bonds in the hands of underwriters had reached what was probably an all-time peak. *The Bond Buyer's* index of average yield of twenty 20-year bonds reached 2.10% on May 13, compared with 2.15% a month earlier. Despite this apparent evidence of strong demand, however, the floating supply of unsold municipals had soared to $178,000,000 on May 17, up 56% from $114,000,000 on April 18.

A year ago, in June 1948, a bad case of overloaded bond inventories had initiated a sharp break in the municipal market which raised the yield index from 2.23% on June 3 to 2.43% by October 7. Whether the present accumulation has similar repercussions will probably be evident by the time of publication of these comments, but sanguine investment bankers declare that there is a strong investment demand at slightly under present offering prices and are hopeful that supply and demand can be brought into balance without the necessity for large price cuts.

The emergence of a situation such as this emphasizes the high degree of competition that exists in the municipal bond business and the problem encountered by investment bankers in trying to cope with the varied assortment of municipal bonds which continue to be offered in large volume from all sections of the country.

A Record Revenue Bond Issue

The outstanding municipal bond transaction in May was the sale by the Triborough Bridge and Tunnel Authority of $141,500,000 revenue bonds — the largest single revenue-bond issue on record. This Authority operates five toll bridges and a toll tunnel and has another tunnel under construction, all located in New York City where they help to link the street and parkway systems of four of the city's five boroughs. The bonds—$41,500,000 15-year 2½% term bonds and $100,000,000 20-year 2¾% term bonds—were sold to a syndicate of over 240 members headed by Dillon, Read & Co., Inc. The financing provided funds for refunding of $101,250,000 tunnel revenue bonds held by the RFC and for the completion of the Brooklyn-Battery Tunnel and a related parking garage.

This revenue-bond issue is extraordinary for other reasons than size. It represents, primarily, the definitive financing of the Queens-Midtown Tunnel, opened in 1940, and the Brooklyn-Battery Tunnel, planned for completion in 1950. Neither of these huge tunnels will have sufficient earnings, according to the estimates of the consulting engineers, to provide for amortization of the bonds by the time of their relatively very short maturities; but they have the prospect of very substantial aid from the earnings of the bridge facilities of this great multipurpose Authority.

The Authority has outstanding $94,352,000 bridge revenue bonds not due finally until 1980, and the net revenues of the five bridges are pledged exclusively to the service of these bonds until they have all been retired. Bridge traffic has risen so rapidly since the end of the war, however, that the consulting engineers estimate that the bridge bonds will be retired by 1958. The Authority has taken advantage of this prospect in providing security for the tunnel bonds. Initially, they will be supported only by the net revenues of the tunnels, which are expected to cover interest by a narrow but widening margin, plus a reserve which is being set up partly from proceeds of the new bond issue. All of the net revenues of the bridges after retirement of the bridge bonds, however, are pledged to support of the tunnel bonds. If the estimates of the engineers are realized, the tunnel bonds can be retired about four years in advance of maturity. These arrangements, in any event, have given to investors who try to appraise long-range security a type of bond which has good prospects of growing stronger with age.

The Bookmobiles Are Rolling

THE Mobile Library, or Bookmobile, is rapidly increasing in popularity throughout the country. This mobile unit has brought a new aspect to life in the country.

LaPorte County, Ind., owns more than 12,000 books, and 1,000 are carried on a trip by its Boyertown bookmobile. Mrs. F. G. Griffith, LaPorte county librarian, explains that patrons enter the orange and green mobile unit at the rear doors, "browse around," select books, and have them charged out at the desk as they leave by the front door.

In Mifflin County, Pa., a "royal blue" bookmobile maintains a regular schedule through the county, according to Mrs. Carola Stuckenrath, county librarian. It was purchased by the library association from annual appropriations over the past several years from the Lewistown Borough Council. The funds have been maintained in a separate account for much-needed alterations to the present library building or for erection of a new structure, but library officials deemed both impractical from a cost standpoint. It was felt that a traveling library was essential for the proper servicing of county schools as well as book stations.

A bookmobile was delivered recently to Montgomery County, Pa. Painted in the county colors, maroon and gray with a black trim around the windows, it runs throughout the county and serves branches where library facilities were lacking or where increased facilities were needed.

Features of the Library Truck

The Merchandiser body can be mounted on any of the nine chassis: Chevrolet, Diamond T, Dodge, Federal, Ford, GMC, International, Reo, and Studebaker. It includes two rear-view mirrors; improved sliding door mechanism; quarter-type or double full-type swing-around rear doors. The quickly removable interior toe board and engine housing assembly afford maximum engine cooling, ventilation and accessibility to the battery, brake assembly, transmission cover, master brake cylinder, instruments and electric circuits. The removable front fender and grill assembly gives complete engine accessibility including removal of the engine. When desired, side windows can be installed in the body panels.

This bookmobile is owned by Montgomery County, Pa. Built by Boyertown Auto Body Works, Inc., Boyertown, Pa., it is roomy, inexpensive, and very popular; it is 108 inches long by 72 inches wide, and 71 inches high.

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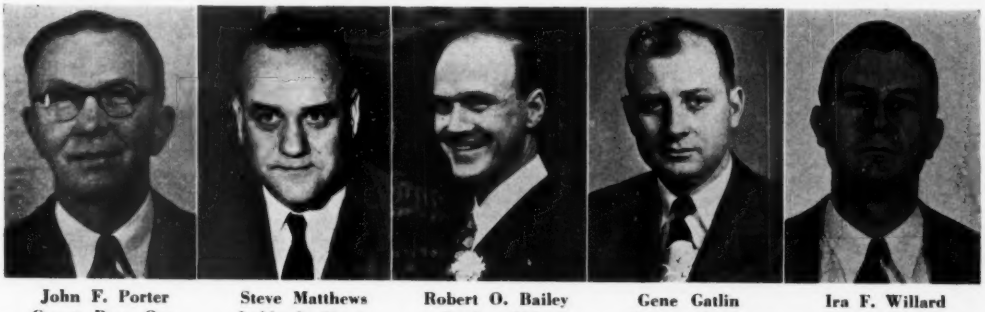
Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in recent issues of *The American City*.



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Gene Gatlin
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Ira F. Willard
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Harold M. Kinder
Flint, Mich.

Other Recent City Manager Appointments

WALLACE G. ARROWSMITH succeeded PETER F. ROAN at Wayne, Mich.

DONALD L. BROWN, assistant manager at El Dorado, Kans., received the appointment at Wakefield, Mich.

BENJAMIN C. BUBAR, JR., succeeded CHARLES ROSS as manager of Blaine, Maine.

FRANCIS P. CALLAHAN, city treasurer, is acting manager at Long Beach, N. Y.

W. C. CAVERT, former mayor, succeeded GEORGE M. MARCH at Independence, Kans.

JOHN J. DESMOND, manager at Mansfield, Mass., 1947 to date, will be the first manager of Brunswick, Maine.

VANCE DEARBORN succeeded THEODORE R. BARTLETT at Ashland, Maine.

O. J. S. ELLINGSON, Sherman, Texas, 1916-32, received the appointment at Edinburg, Texas.

J. C. HARRISON is the acting manager at Pittsburg, Texas.

R. J. HAYES, Wray, Colo., has been appointed at Colby, Kans.

FRED I. HOWARD received the appointment at Rumford, Maine.

WILLIAM N. HUNTER received the appointment at Wheeling, W. Va.

JEROME KEITHLEY, assistant city manager, received the appointment at Stockton, Calif.

WARREN KNOWLES, assistant manager at Ellsworth, Maine, will be the first manager at Berwick, Maine.

FRANK H. LAWLER, assistant manager at Newton, Kans., received the appointment at Abilene, Kans.

R. K. MCMULLEN received the appointment at Midwest City, Okla.

J. D. MACKINTOSH, JR., assistant engineer, J. N. Pease and Co., Charlotte, N. C., succeeded L. T. ROGERS at Lancaster, S. C.

BERNARD L. MARSH succeeded ERNEST MARRINER at Guilford, Maine.

C. A. MILLER, manager at Grayling, Mich., 1935-36; Kingsford, 1936-41; Traverse City, 1941 to date, went to Saginaw, Mich., June 1.

TOM RUSSELL, director of public works, is appointed at La Junta, Colo.

EDWARD SAWYER is acting manager at Mechanic Falls, Maine.

C. V. SIGNOR, Grants Pass, 1946-48, succeeded Oren King at Pendleton, Ore.

CHARLES S. STEVENSON is acting manager at Portsmouth, Ohio.

E. S. SWINDELL, business manager, Durham Recreation Department, received the appointment at Durham County, N. C.

FRED TERRELL received the appointment at Toccoa, Ga.

JOHN W. TRUE received the appointment at New Gloucester, Maine.

ROBERT B. WEISS, assistant manager at Keene, N. H., is the first manager of South Berwick, Maine.

ERVIN L. WELCH received the appointment at Richmond, Maine.

CLARENCE E. RIDLEY
Director
International City Managers' Association

How good are MARK-TIME parking meters?

Ask the city that has them

Mark-Time meters are the last word in mechanical simplicity, ruggedness and long-term dependability. They have set outstanding and unequalled records for performance.

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NO OPERATING DIFFICULTIES

We have had no operating difficulties with the Mark-Time Parking Meters as they are perhaps the most simple mechanism on the market.

T. E. THOMPSON, *City Manager*
Norman, Oklahoma

BEST BY TEST

The first meters to be installed here were the manual Mark-Time meters, later the city decided to buy additional meters, and 100 other manual meters and 12 automatic meters were purchased. The Mark-Time meter was by far the superior meter in every particular . . . much stronger, more rugged.

W. M. BRADFORD, *Meter Department Supervisor*
Americus, Georgia

WEATHER-PROOF

After the meters were installed the weather turned very cold . . 20 degrees below zero. The meters have caused us no trouble. We are indeed very much pleased with Rhodemaster.

GUY WELLS, *Chief of Police*
Northfield, Minnesota

NET INCOME GREATER

The maintenance department advised me that the meters that they are partial to are the Mark-Time meters. The net income is greater and the maintenance cost lowest.*

CHAS. L. BOWDEN, *Mayor*
Macon, Georgia

*This town speaks from experience, having four different make parking meters.

Photostats of the complete letters from which these excerpts were taken are available upon request.

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REG. U.S. PAT. OFF.

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

June 6-10—Quebec, Canada
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Meeting (Chateau Frontenac). Exec. Dir., George S. Mooney, Mount Royal Hotel, Montreal, Quebec, Canada.

June 9-11—Glenwood Springs, Colo.
COLORADO MUNICIPAL LEAGUE. Annual Convention (Hotel Colorado). Exec. Sec., D. Mack Easton, 327 Norlin Library, Boulder, Colo.

June 9-11—Hibbing, Minn.
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Convention (Hotel Androy). Exec. Sec., C. C. Ludwig, 15 University of Minnesota Library, Minneapolis 14, Minn.

June 10-11—Hoquiam, Wash.
ASSOCIATION OF WASHINGTON CITIES. Annual Meeting (Hotel Emerson). Exec. Sec., Chester Biesen, 252 J. Allen Smith Hall, University of Washington, Seattle 5, Wash.

***June 10-11—Nashville, Tenn.**
TENNESSEE MUNICIPAL LEAGUE. Annual Meeting (Hotel Andrew Jackson). Exec. Sec., Herbert J. Bingham, 610-611 Cotton States Bldg., Nashville 3, Tenn.

June 12-14—Wilkes-Barre, Pa.
PENNSYLVANIA STATE ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Meeting (Hotel Redington). Sec.-Treas., H. A. Fritschman, 2325 Darby Road, Havertown, Pa.

June 12-17—Cleveland, Ohio
NATIONAL CONFERENCE OF SOCIAL WORK. Annual Meeting (Cleveland Auditorium). Exec. Sec., Joe R. Hoffer, 82 North High St., Columbus, Ohio.

June 13-15—Syracuse, N. Y.
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting (Hotel Syracuse). Exec. Sec., Morgan Strong, 6 Elk St., Albany, N. Y.

June 13-17—State College, Pa.
SECOND ANNUAL PENNSYLVANIA SEWAGE WORKS SCHOOL. Co-Chairmen, Robert E. Stiemke, Professor of Sanitary Engineering, and R. Rupert Kountz, Assistant Professor Sanitary Engineering, State College, Pa.

June 17-18—Chicago, Ill.
CENTRAL STATES SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Sherman). Sec.-Treas., Paul W. Reed, 1098 W. Michigan St., Indianapolis 7, Ind.

June 17-18—Glendive, Mont.
MONTANA MUNICIPAL LEAGUE. Annual Convention. Exec. Sec., M. J. Mee, 519 Birch St., Anaconda, Mont.

June 22-24—Cleveland, Ohio
OHIO SEWAGE AND INDUSTRIAL WASTE TREATMENT CONFERENCE. Annual Meeting (Hotel Carter). Sec.-Treas., G. A. Hall, 301 Ohio Departments Bldg., Columbus 15, Ohio.

June 22-25—Lake Tahoe, Calif.
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Convention (Tahoe Tavern). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago 37, Ill.

June 23—Wanaque, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Outing and Inspection. Exec. Sec., C. B. Tygert, P. O. Box 178, Newark 1, N. J.

June 24-26—Biloxi, Miss.
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Convention (Hotel Buena Vista). Mgr., George Lemon Sugg, Box 531, Jackson, Miss.

June 29-July 1—Harbor Springs, Mich.
MICHIGAN ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Hotel Ramona Park). Exec. Sec., E. B. Wilson, Detroit Leland Hotel, Detroit 26, Mich.

June 29-July 1—Baton Rouge, La.
TWELFTH ANNUAL SHORT COURSE FOR WATER AND SEWERAGE WORKS PERSONNEL (Louisiana State University). Dir., John H. O'Neill, Division of Public Health Engineering, Department of Health, Civil Courts Bldg., New Orleans 7, La.

July 17-20—Oakland, Calif.
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention. Exec. Dir., Keith L. Seegmiller, 1616 I St. NW., Washington 6, D. C.

***July 25-27—Pittsburgh, Pa.**
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Convention (Hotel William Penn). Sec., Frank B. Titus, 80 Price Ave., Lansdowne, Pa.

July 26-28—Niagara Falls, N. Y.
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE. Annual Meeting (Hotel Niagara). Exec. Sec., R. W. Morris, Room 204, State Tower Bldg., Syracuse, N. Y.

***August 22-24—State College, Pa.**
PENNSYLVANIA WATER WORKS OPERATORS ASSOCIATION. Annual Meeting (State College). Sec., Ivan M. Glace, 22 South 22nd St., Harrisburg, Pa.

Aug. 22-26—Baltimore, Md.
NATIONAL SHADE TREE CONFERENCE. Annual Meeting (Hotel Lord Baltimore). Sec.-Treas., L. C. Chadwick, Department of Horticulture, Ohio State University, Columbus, Ohio.

Sept. 7-9—Bedford, Pa.
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Conference (Hotel Bedford Springs). Sec., Louis D. Brown, 30 Rockefeller Plaza, N. Y. 20, N. Y.

Sept. 8-9—Minneapolis, Minn.
AMERICAN WATER WORKS ASSOCIATION—Minnesota Section. Annual Conference (Hotel Nicollet). Sec.-Treas., R. M. Finch, 518 Metropolitan Life Bldg., Minneapolis 1, Minn.

Sept. 12-16—New Orleans, La.
NATIONAL RECREATION ASSOCIATION. Annual Congress (Municipal Auditorium). Sec., T. E. Rivers, 315 Fourth Ave., New York 10, N. Y.

Sept. 13-16—Dixville Notch, N. H.
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Hotel Balsams.) Sec., Joseph C. Knox, 204 Tremont Bldg., Boston 8, Mass.

Sept. 19-22—Boston, Mass.
NATIONAL TAX ASSOCIATION. Annual Conference (Hotel Statler). Sec., Ronald B. Welch, P. O. Box 1799, Sacramento 8, Calif.

Sept. 19-23—French Lick, Ind.
ILLUMINATING ENGINEERING SOCIETY. Annual Convention (Hotel French Lick Springs). Exec. Sec., A. D. Hinckley, 51 Madison Ave., New York, N. Y.

Sept. 20-22—Des Moines, Iowa
IOWA SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Kirkwood). Sec.-Treas., Leo Holtkamp, P. O. Box 310, Webster City, Iowa.

Sept. 20-23—Detroit, Mich.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Convention (Hotel Book Cadillac). Exec. Sec., Frank L. Brunckhorst, 30 North LaSalle St., Room 831, Chicago, Ill.

Sept. 21-23—Atlanta, Ga.
GEORGIA WATER AND SEWAGE WORKS ASSOCIATION. Annual Water and Sewage School (Georgia Institute of Technology). Sec.-Treas., Leonard B. Waller, R.F.D. No. 12, Box 246, Atlanta, Ga.

***Sept. 22-23—Colorado Springs, Colo.**
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Meeting (Hotel Acacia). Sec.-Treas., O. J. Ripple, 426 Cooper Bldg., Denver 2, Colo.

***Sept. 22-23—Wheeling, W. Va.**
AMERICAN WATER WORKS ASSOCIATION—West Virginia Section. Annual Convention (Olglebay Park). Exec. Sec., J. B. Harrington, Div. of Sanitary Engineering, State Health Dept., Charleston, W. Va.

Sept. 25-28—Washington, D. C.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Hotel Wardman Park). Sec.-Treas., Wilbur S. Smith, Strathcona Hall, New Haven 11, Conn.

Sept. 27-30—New Orleans, La.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Meeting (Hotel Roosevelt). Exec. Sec., Daniel B. Tierney, 8 Robbins Road, Arlington, Mass.

***Sept. 28-30—Traverse City, Mich.**
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Meeting (Hotel Park Place). Exec. Sec., Raymond J. Faust, Mich. Dept. of Health, Lansing 4, Mich.

***Oct. 2-6—Atlantic City, N. J.**
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Hotel Traymore). Gen. Sec., A. W. Baker, 292 Madison Ave., New York 17, N. Y.

***Oct. 2-6—Boston, Mass.**
THE ASSOCIATION OF SCHOOL BUSINESS OFFICIALS. Annual Convention (Hotel Statler). Sec.-Treas., H. W. Anderson, 306 E. Lovell St., Kalamazoo, Mich.

***Oct. 6-8—Winnipeg, Manitoba, Can.**
NATIONAL CITIZENS' PLANNING CONFERENCE OF CANADA. Annual Meeting (Hotel Fort Garry). Exec. Dir., Alan H. Armstrong, 56 Lyon St., Ottawa, Canada.

***Oct. 10-12—Cleveland, Ohio**
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Hotel Statler). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 10-13—Pittsburgh, Pa.**
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Convention (Hotel William Penn). Sec., Irvin Shulsinger, 8 E. 41st St., New York, N. Y.

***Oct. 12—Oklahoma City, Okla.**
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Meeting (Hotel Biltmore). Sec., L. A. Jackson, Mgr., Municipal Water Works, Municipal Auditorium, Little Rock, Ark.

***Oct. 17-19—Pittsburgh, Pa.**
WATER CONFERENCE OF THE ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA. Tenth Annual Conference (Hotel William Penn). Chairman, H. M. Olson, Hotel William Penn, Pittsburgh, Pa.

***Oct 17-20—Boston, Mass.**
FEDERATION OF SEWAGE WORKS ASSOCIATIONS. Annual Meeting (Hotel Statler). Exec. Sec., W. H. Wisely, 325 Illinois Bldg., Champaign, Ill.

***Oct. 23-26—Cleveland, Ohio**
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Meeting (Hotel Cleveland). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW., Washington, D. C.

***Oct. 24-27—Coronado, Calif.**
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Conference (Hotel Del Coronado). Exec. Dir., A. W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 24-28—New York, N. Y.**
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting (Hotels Statler and New Yorker). Exec. Sec., Dr. Reginald M. Atwater, 1790 Broadway, New York, N. Y.

***Oct. 24-28—Chicago, Ill.**
NATIONAL SAFETY CONGRESS AND EXPOSITION OF THE NATIONAL SAFETY COUNCIL. Annual Congress (Hotels Stevens, Congress, Palmer House, Sherman, Morrison). Gen. Sec., R. L. Forney, 20 North Wacker Drive, Chicago 6, Ill.

***Oct. 25-28—Sacramento, Calif.**
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting (Hotel Senator and Municipal Auditorium). Sec., H. C. Medbery, San Francisco Water Dept., Millbrae, Calif.

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Municipal and Civic Publications

Water and Sewer Rates

WATER RATES AND SEWER SERVICE CHARGES—*The American City Magazine, 470 Fourth Ave., New York 16, N. Y.* 1949. 64 *pp.* $2.

A reference booklet containing pertinent water-rate data from 11 selected cities, and sewer-service charges from 15 cities. The text also discusses basic fundamentals in water and sewer rates, such as the number and type of blocks, the minimum charges, public and private fire-protection charges, and rates to out-of-city water customers.

The text reproduces articles that have appeared in this magazine in past months. These have been reedited slightly by the engineering staff of the magazine to make them more unified for presentation in handbook style.

Water Resources

ELEMENTS OF APPLIED HYDROLOGY — *By Don Johnstone and William P. Cross. Ronald Press Co., 15 E. 26th St., New York 10, N. Y.* 275 *pp.* $4.

Here is a text useful to anyone making a study of water needs. These can lie in municipal and industrial supplies, irrigation, power, flood control, navigation, erosion control or pollution abatement. The book gives practical information that makes a study of these fields easier. Although it is often believed that the drouth of the 1930's was as bad as any we will ever have, the study points out that this is not so. Evidence exists showing that more severe drouths can and probably will occur in the future, and experiments along these lines will give some clue on how to be prepared for them.

Municipal Pension Plans

PROCEEDINGS, LOCAL GOVERNMENT CONFERENCE ON RETIREMENT AND PENSIONS FOR PENNSYLVANIA MUNICIPAL EMPLOYEES — *Institute of Local Government, University of Pittsburgh, Pittsburgh, Pa.* 1949. 56 *pp.*

An excellent discussion of problems involved in establishing sound retirement and pension systems in Pennsylvania local governments. Many of the points raised during the conference are of general interest to municipal officials in other states. A summary of the Pennsylvania Municipal Employees Retirement Law is also available from the Institute of Local Government at Pittsburgh.

Information Report on Building Lines

BUILDING LINES, MAPPED STREETS, SET BACKS, FRONT YARDS—*Information Report No. 1, Planning Advisory Service, American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill. April* 1949. 7 *pp. Available only to municipalities subscribing to Planning Advisory Service. Further information available on request to the Society.*

This is the first in a series of information reports to be published by the new Planning Advisory Service of the American Society of Planning Officials. This service is available on a nominal subscription basis to municipalities whose officials desire answers to specific planning questions. The service also includes a series of reports dealing with important current problems in addition to the use of the research facilities of the society.

The first report contains sections discussing the use of eminent domain and police power in establishing building lines, and various court interpretations. It also discusses the use of building lines that have been established on existing streets, and how building lines are abandoned. It lists references to state laws and other sources of information on the subject. Future Planning Advisory Service Bulletins will include the following subjects: metropolitan planning, elimination of non-conforming uses, municipal auditoriums, urban redevelopment, off-street parking, and architectural control.

Local Government Law

LOCAL GOVERNMENT LAW—*By Jefferson B. Fordham. The Foundation Press, Inc., 208 Flatbush Ave. Extension, Brooklyn 1, N. Y.* 1949. 1,060 *pp.* $8.

An outstanding work in the field, written by the Dean of the College of Law at Ohio State University. Though designed primarily for use as a text in advanced law-school courses, its make-up is such as to provide interesting reading for all concerned with the development of local governmental institutions and processes. The cases cited and the illustrative material reproduced are all of recent date and well-integrated with the author's own text and critical comment, with a very minimum of footnotes, so that the points in the book are understandable and of value to the lay reader.

In the preface the author points out that the book represents an attempt at a fresh approach to the subject. It is his belief that conventional courses and texts in municipal corporations have been too narrow and have dealt with municipal organization, powers, procedures, and responsibilities more or less in the abstract and without stress upon functions and objectives, and that certain substantive areas, such as finance, personnel, intergovernmental relations and local lawmaking, have not received adequate attention.

It is evident that the author is well aware of up-to-date local-government trends, since he devotes 250 pages to community planning and development. The book should be on the shelves of every municipal library. Local law officers are not the only ones who will benefit from a perusal of this book's contents and an absorption of its philosophy.

Building Industry Responsibilities

HOW EFFICIENT IS THE BUILDING INDUSTRY?—*By Ralph Walker. Address before meeting of New York Building Congress, Suite 230, 101 Park Ave., New York, N. Y.* 1949. *Mimeo.* 13 *pp.*

A thoughtful address by the new president of the American Institute of Architects which stresses the responsibility of the building industry to meet increased demands for social-welfare needs with imagination and willingness to produce at reasonable cost.

Developing Man's Physical Environment

BUILDING FOR MODERN MAN, A SYMPOSIUM—*Thomas H. Creighton, Editor. Princeton University Press, Princeton, N. J.* 1949. 219 *pp.* $3.50.

A report and synthesis of the discussions, held in Princeton University in the spring of 1947, which were concerned with the development of man's physical environment. The 60 participants were mainly well-known architects, though several city planners were also included.

An unusual and highly able job of pu'ling together, combing through and analyzing the various statements and attitudes presented during the conference has been done by Mr. Creighton, who is also the editor of *Progressive Architecture.*

The first three sections form an "analytical inquiry" into the environmental needs of man, and what are both the limitations and possibilities that physical, technical, and environmental factors impose. The subject of education is given attention in a special section. A section on planning includes statements by Henry S. Churchill, Talbot Hamlin, Frederick J. Adams, Theodore T. McCrosky, Arthur E. Morgan, Louis Justement, Walter Rolfe, and Roland Wank. A fascinating debate between Frank Lloyd Wright and Robert Moses forms a separate chapter, and a final section contains impressions and conclusions by various of the participants.

1949 Municipal Year Book

THE MUNICIPAL YEAR BOOK, 1949—*International City Managers' Association, 1313 E. 60th St., Chicago 37, Ill. June* 1949. 599 *pp. plus Index.* $10.

The sixteenth edition of *The Municipal Year Book,* published this month, continues the high level of reporting on facts and statistics about individual city activities which has characterized previous volumes. There are discussions of the current problems of cities throughout the country, and analyses of trends by population groups.

Among the new features of the 1949 edition are chapters on Changes in City Areas, Professional Organizations of Municipal Officials, Municipal Non-Property Taxes, Recreation Standards, Traffic Safety Yardsticks, and Regulation of Curb Loading Zones. All the regular features of the volume are continued, with reports on city activity developments in 1948 written by experts in the various fields covered. The useful charts and the directories of city officials continue to make this book a basic reference source for all municipal libraries.

Public Health

PUBLIC HEALTH IN THE WORLD TODAY — *By James Stevens Simmons. Harvard University Press, Cambridge 38, Mass.* 332 *pp.* $5.

This text summarizes public-health activities by presenting chapters prepared by authorities in each phase of the work. General Simmons is actually the editor, rather than the author. The book is broadly divided into four parts. The first discusses public health as a profession, and separates its identity from personal medication. The next analyzes the various phases of public health activity in the United States. This includes the Public Health Service, the Army, the Navy, the Veterans Administration and others. The third presents public-health programs and problems abroad, and dwells at length on the difficulties presented by the war-orphaned child the world over. The fourth part discusses new developments in public health and has an interesting and timely article on the factors presented by atomic fission.

Local Health Article Reprint

THE SHAME OF OUR LOCAL HEALTH DEPARTMENTS—*By Jack Harrison Pollack. Reprints from "Collier's" Magazine, Jan. 22, 1949. 250 Park Ave., New York 17, N. Y.* 3 *pp.*

Another one in the series of public service articles which have appeared recently in several of the national magazines. This article provides a check list by which the public can judge the effectiveness of local health departments. It urges the formation of local health councils, to be affiliated with the National Health Council at 1790 Broadway, New York 19, N. Y.

Public Relations Committees—When and How to Use Them

THE PUBLIC RELATIONS COMMITTEE—*By David M. Church. National Publicity Council for Health and Welfare Services, Inc., 130 East 22nd St., New York 10, N. Y.* 1949. 26 *pp.* $1.

A discussion of the role of public relations committees, and the tasks which should be given them. The pamphlet emphasizes that public relations committees should be formed only if (1) the agency (or local administration) is willing to give it a voice in policy matters; (2) the committee is given the opportunity to determine what public opinion is; (3) the local administration is willing to correct its activities to meet public attitude; and (4) membership on the committee can be assured from those who have the necessary knowledge, and the time and willingness to give the effort.

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Type VAW Double Obstruction Light with Type C Globes

Type HIRL
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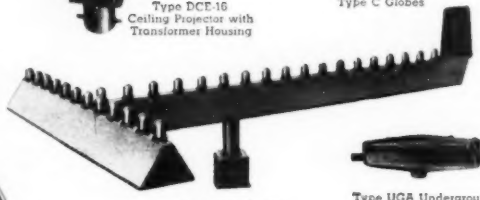
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New Zoning Text

ZONING LAW AND PRACTICE—*By E. C. Yokley. The Michie Company, Charlottesville, Va.* 1948. 514 *pp.* $12.

The need for a first-class text on zoning—comprehensive, reliable, and well thought out—is becoming acute, for the last edition of Edward M. Bassett's definitive work is nearly ten years old. While the present volume, by the first Assistant City Attorney in Nashville, does not fill that gap, it provides considerable useful material for city officials and for practicing attorneys who handle zoning cases.

The book is at its best in describing the form of an ordinance and zoning procedure; and in particular the discussion of spot zoning is excellent. The author's observations are based on a good deal of practical experience, and his viewpoint is usually based on a solid appreciation of the public welfare. Moreover, the chatty, informal style makes for easy and pleasant reading.

Since the book is based upon a survey of the cases, its shortcomings are more or less inevitable. For the judicial analysis of zoning problems tends to get lost in constitutional abstractions, and a study of appellate opinions simply does not reveal most of the really important problems of zoning today—the adaptation of zoning regulations to technological changes such as large-scale developments and automobile traffic, the eliminations of non-conforming uses, the possibilities of zoning as a density control with a realistic bulk envelope, the simplification of incredibly complex regulations and the development of a one-map system, and so on. Moreover, the organization of the book is rather loose, and the discussion of variances does not make clear the distinction between variances (based upon hard-ships) and exceptions or special permits.

NORMAN WILLIAMS, JR.

Industrial Zoning Urged

LIGHT INDUSTRY OR HEAVY TAXES—*By Robert Tevlot Livingston. Long Island Lighting Co., Mineola, N. Y.* 1948. 21 *pp.*

Written by a professor of industrial engineering at Columbia University who is also director of commercial research for the Long Island Lighting Co., this little pamphlet points out the importance and desirability of more industry in the Long Island area. It shows how, with the breaking up of the large estates in the area, governmental costs are mounting, and cannot be met adequately by income from residential areas alone. It suggests the reexamination of local zoning ordinances with respect to the industrial use of land, and the creation of an industrial commission or committee.

Responsibility for Traffic Accidents

RESPONSIBILITY FOR TRAFFIC ACTIVITIES—*By Wilbur S. Smith. Article in "Traffic Engineering," April* 1949 *issue, pp.* 321-324. *Institute of Traffic Engineers, 212 Strathcona Hall, New Haven* 11, *Conn. Single copies,* 20 *cents.*

This article points out that public officials must assume at least an equal share with motorists and pedestrians for responsibility in correcting problems of accident and congestion. Traffic-safety efforts rank low in the attention and budgets allotted to them in comparison with other public-safety activities. This is because the driver or the pedestrian is usually blamed for traffic accidents rather than public officials. The article declared that reductions in accidents can and do re-sult when public officials listen to technical advice on traffic matters and use their authority and resources to tackle the problems on a sound basis.

Comic Book Discussion

ARE COMIC BOOKS A NATIONAL HAZARD?—*Feb.* 1949 *issue of "Platform," Published by the Newsweek Club and Educational Bureau, 152 W. 42nd St., New York* 18, *N. Y.* 23 *pp.*

Another in the series of stimulating and informative reports on timely and controversial questions prepared by the Newsweek Club Bureau for the use of community leaders, educators, and discussion groups. Questions are raised, together with suggested solutions, and lists for further reading are included.

Public Recreation Liability

LIABILITY IN PUBLIC RECREATION—*By D. B. Dyer and J. G. Lichtig. C. C. Nelson Publishing Co., Appleton, Wis.* 1949. 128 *pp.* $3.

Every public official who directs recreation or maintenance of public facilities would like to be able to say that his competence includes a knowledge of the laws pertaining to his profession. One glance at the voluminous statute books and court cases is usually enough to deter him from the attempt. Nevertheless, when the municipality encounters a costly damage suit, he realizes that one important phase of his responsibility may not have been fulfilled.

This excellent handbook with its terse chapters, presents a distillation of the statutes and court cases of every state that are relevant to public recreation. The book is written in layman's language, with such legal terms as it has been necessary to use defined in a glossary. There is a tabulation by states of the court cases quoted for ready reference locally.

Police Salaries in Virginia

SALARIES AND WORKING CONDITIONS OF POLICEMEN IN VARIOUS VIRGINIA POLICE DEPARTMENTS—*League of Virginia Municipalities, 9:2 Travelers Bldg., Richmond* 19, *Va. Report No.* 316. *April* 1949. 33 *pp.* $1.

A tabular summary which shows for each Virginia municipality pertinent information regarding salaries and working conditions of policemen, and enables comparisons to be made easily.

Trailer Camp Problems

TRAILER CAMPS ON THE INCREASE—*By David C. Wiggin, Jr. Article in "Connecticut Health Bulletin," March* 1949 *issue, pp.* 63-68. *Connecticut State Department of Health, State Office Bldg., Hartford* 6, *Conn.*

A discussion of problems involved in municipal control of trailer camps, and suggestions as to how local health officers can make use of the regulations in the Connecticut state sanitary code.

1948 Planning Annual

PLANNING, 1948—*American Society of Planning Officials,* 1313 *E. 60th St., Chicago* 37, *Ill.* 198 *pp.* $5.

This volume contains the proceedings of the annual National Planning Conference held in New York City, October 11-13, 1948. An unusually high standard characterized the conference discussions on vitally important planning issues. A review of the headings of the major sections will indicate the scope and range of the topics covered. Among them are: "The New York Region—A Case Study of the Limits of Growth by Sprawl"; "Decentralization—Blessing or Tragedy?"; "Criteria for Selection of Initial Redevelopment Areas"; "Planning Problems of Small Communities and Large Cities"; "Planning Problems of Small Watersheds"; Criteria in the Selection of Cities for Industrial Location"; "Relocation of Commercial Areas"; "Inter-American Planning"; and "Training the Planner." The lead article on "The Goals of Planning," by Lewis Mumford should be required reading for all members and directors of city planning commissions.

Local Efforts to Combat Alcoholism

HOPE FOR THE ALCOHOLIC—*By Kathryn Close. Article in "The Survey," April* 1949, *pp.* 202-206. *Survey Associates, Inc.,* 112 *East* 19*th St., New York* 3, *N. Y.* 50 *cents per copy.*

This carefully written article points out that new attitudes, community programs, government action and scientific research are promising a more effective attack on alcoholism, a major public-health problem. It estimates that 4,000,000 Americans are currently suffering from the disease. Of special interest are the descriptions of local community and state-devised programs. There is a brief description of New York City's Bureau of Alcoholic Therapy established within the Department of Welfare in 1943, and the success with which it has met.

City Government Finances

COMPENDIUM OF CITY GOVERNMENT FINANCES IN 1947—*Government Division, Bureau of the Census,* 1949. 110 *pp. For sale by Superintendent of Documents, Washington* 25, *D. C.* 45 *cents.*

This useful compendium contains information on city government finances—revenues, borrowings, expenditures, and enterprises—for cities with a 1940 population of 25,000 or over. The data are broken down into two groups—population and individual city. Of special value are some of the comprehensive tables such as those showing general expenditures for each city by character, for operation, and for capital outlay. Information is also given on water-supply-system finances, electric light- and power-system finances, and other miscellaneous city enterprises.

New York City Tax Department

BIENNIAL REPORT OF THE TAX DEPARTMENT AND THE TAX COMMISSION OF THE CITY OF NEW YORK, 1946-1948—*Published by Tax Department, City Hall, New York, N. Y. Feb.* 1949. 52 *pp.*

A description of the work and organization of the tax commission and bureaus of the department is contained in this report, as well as assessed valuations, with separate land and improvement breakdowns, for the city as a whole and for each borough. An indication of the volume of work handled by the department is revealed by the fact that 832,348 individual parcels of real estate are covered, with a total assessed valuation (including special franchises of public utilities) of $17,584,492,413.

National Taxation Conference

PROCEEDINGS, NATIONAL TAX ASSOCIATION CONFERENCE—*Edited by Ronald B. Welch, Box* 1799, *Sacramento* 8, *Calif.* 1949. 724 *pp.* $6.75.

Major sections of interest to local officials in these proceedings of the conference on taxation held in Denver, in October 1948, are these entitled "Revenue Problems of Local Governments," "Tax Administration: Objectives and Standards," "Current Real Estate Appraisal Programs," "Highway Financing," "State and Local Taxation of Mineral Resources," and "The Administration of Sales and Other Excise Taxes."

Improving Assessment Procedures

REAL ESTATE ASSESSMENT PROCEDURES IN NORTHAMPTON COUNTY—*Northampton County Branch, Pennsylvania Economy League, Inc., Alpha Building, Easton, Pa. October* 1948. *Mimeo.* 20 *pp. Charts.* 50 *cents.*

For achieving an ultimate goal of equitable assessments in Northampton County, this report recommends revision of individual assessments and the manner of their use so as to present all information useful in arriving at proper assessments. It also urges completion of a project for mapping the county, originally begun by the WPA, so that all political subdivisions will have maps suitable for assessment purposes. The development by the county of schedules of land and building evaluations for the guidance of assessors is recommended.

Belgian Local Tax Powers Augmented

TEXTE COMMENTE DE LA LOI DES FINANCES PROVINCIALES ET COMMUNALES—*By Paul Colet. Published by the Union des Villes et Communes Belges, Brussels, Belgium.* 1949. 180 *pp.* 75 *francs.*

This publication of the Union of Belgian Cities and Communities, written in French, contains: an introductory examination of the problem of municipal finances and their effect upon communal autonomy in various countries; an explanation of the new financial setup created in Belgium by the law of December 24, 1948, described briefly by Senator Emile Vinck in an interview published on page 119 of this issue; and an annotated text of the law including excerpts of parliamentary debate and reports.

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Report on Standards for Local Ordinances

NATIONALLY RECOGNIZED STANDARDS IN STATE LAWS AND LOCAL ORDINANCES—*American Standards Association, Inc., 70 E. 45th St., New York 17, N. Y. 44 pp. $1 per copy to non-members of ASA.*

This is a presentation of the problem of incorporating nationally recognized standards in state laws and local ordinances by a committee of the American Standards Association which included representatives from a number of interested national organizations. The report contains four papers on the subject. The texts of existing state-enabling acts for municipal adoption of technical codes by reference are given, and the appendix includes a proposed model state statute, an act for building-codes adoption by reference, a draft of a municipal ordinance providing for the inspection of electrical installations, and a suggested form for an ordinance for adopting a uniform building code by reference.

A Policy for Redevelopment

REBUILDING WITHOUT CONGESTION, A POLICY FOR CENTRAL CITY DEVELOPMENT—*"Regional Plan Bulletin," Regional Plan Association, 205 E. 42nd St., New York, N. Y. March 1949. 8 pp. 50 cents.*

This bulletin supplements a previous one entitled "At the Crossroads" in which a new policy was suggested for development of the suburban areas of the New York region. The present bulletin presents a policy which would enable the region's older central cities—such as New York, Newark, Bridgeport, Jersey City, Elizabeth, Paterson and Yonkers—to rebuild themselves unhampered by the economic necessity of perpetuating old patterns of congestion. The bulletin is designed to further public discussion of the basic issues which must be faced if the living environment is to be improved in the central cities of the New York region and the other growing metropolitan regions in the country.

Tourist Development

HOW TO PROFIT FROM THE TOURIST BUSINESS, A GUIDE FOR COMMUNITY DEVELOPMENT—*By C. P. Holway. Published by Jay Rathburn, Editor-Publisher, "Resort Management," Milwaukee, Wis. 45 pp.*

This book, written as a guide for communities and community groups, outlines the profit opportunities in the American tourist business, and suggests practical steps by which communities can make themselves more interesting and attractive to tourists. There is an emphasis on beautification projects and other natural improvements which should serve not only to attract more tourists but also add considerably more enjoyment and pleasure to a community's local inhabitants.

Plea for a Dynamic Democracy

WE MUST NOT BE AFRAID OF CHANGE—*By Raymond B. Fosdick. Reprint from "The New York Times Magazine," April 3, 1949. 2 pp. Single copies available without charge from Editorial Department,* THE AMERICAN CITY, *470 Fourth Ave., New York 16, N. Y.*

An eloquent plea by the former president of the Rockefeller Foundation for acceptance of change and growth and the preservation of free thought, freely expressed, as the only real safeguard of a vigorous and dynamic democracy. The article argues against the circumscribing of the human intellect and ideas. It points out that, in our concern over what communism may do to democracy, we have overlooked the danger of what we ourselves may do to democracy under the stimulus of fear. "The only adequate way to answer the challenge of communism," writes Mr. Fosdick, "is to continue the building of an economic and social system whose concrete results in terms of welfare of mankind will far outstrip anything that communism can even promise. Democracy thus interpreted as a positive force can create new hopes and new initiatives in human life and can capture the imagination of the world."

Progress in Highway Control

LAND ACQUISITION AND CONTROL OF HIGHWAY ACCESS AND ADJACENT AREAS, COMMITTEE REPORT—*Highway Research Board, Division of Engineering and Industrial Research, National Research Council, 2101 Constitution Ave., Washington 25, D. C. Bulletin No. 10. Feb. 1948. 42 pp.*

This bulletin summarizes recent trends with regard to administrative and legislative regulations concerning land acquisition for highways and roadside control.

The following papers are also included in the bulletin: "A Planner's View of Express Highways," by Paul Oppermann, "State Administration of the Highway Right-of-Way Function," by G. E. Strauss, "Housing Development and Express Highways," by Earl von Storch, and "Estimating Damage Caused by Loss of Access Rights," by Frank K. Wall.

Broad Municipal Objectives

A NATIONAL PROGRAM FOR AMERICAN MUNICIPALITIES—*American Municipal Assn., 1313 E. 60th St., Chicago 37, Ill. 1948. 10 pp.*

This is a statement of objectives for a national municipal program, designed to provide a ground for discussion by municipal officials generally. Action was taken on several of the points during the conference of the American Municipal Association held in Washington in December. The booklet points out that a national municipal program can never be static, as salient municipal issues change in their relative importance.

Community Development Bibliography

COMMUNITY DEVELOPMENT, BASIC INFORMATION SOURCES—*By Victor Roterus and Max R. Bloom, Area Development Division, U. S. Department of Commerce, Washington 25, D. C. April 1949. 10 pp.*

This excellent listing includes material on making community surveys, expansion of trade and industry, plant location, and planning and zoning. It is designed for use by state and local agencies, research foundations, businessmen, consulting engineers, academic groups, and students.

Other Reports Received

CALIFORNIA—Old Age and Blind Security Programs in California: Proposition No. 4. By Elizabeth Ferina. Bureau of Public Administration, University of California, Berkeley. April 1949. Mimeo. Tables. 94 pp. $1.

CHICAGO, ILL.—Annual Report of the Department of Public Works for Year Ending Dec. 31, 1947. Tables. Graphs. Charts. 364 pp.

EAST CLEVELAND, OHIO — Annual Report 1948. The East Cleveland City Commission. Graphs. Charts. Tables. 4 pp.

FLORIDA—Proceedings of the First Annual Public Health Engineering Conference, Nov. 12-13, 1948. Bulletin Series No. 26. April 1949. Florida Engineering and Industrial Experiment Station, University of Florida, Gainesville. Map. 118 pp.

GARDEN CITY, N. Y.—Annual Report 1948-1949. Department of Public Works, Village Hall, 110 Seventh St., Garden City. Mimeo. Charts. Graphs. 7 pp.

LOUISVILLE, KY.—Annual Report 1947-1948. Department of Finance, City Hall, Louisville. Tables. Graphs. 69 pp.

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NEWTON, MASS.—Annual Report, Dec. 31, 1948. Department of Public Works, Newton. Mimeo. Tables. Graphs.

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NOVA SCOTIA, CANADA—Proceedings of the Annual Convention of the Union of Nova Scotia Municipalities held at Annapolis Royal, Nova Scotia, Sept. 8, 9, 10, 1948. Illus. 96 pp.

RALEIGH, N. C. — Annual Report 1947-1948. Illus. Graphs. 32 pp.

SYRACUSE, N. Y.—Annual Report 1948. Department of Public Works, City Hall, Syracuse. Mimeo. Tables. Illus. 91 pp.

UNITED STATES — Aircraft Use in 1947. Civil Aeronautics Administration, Research Division and Office of Aviation Information, Washington, D. C. Feb. 1949. Tables. Graphs. Maps. 62 pp.

——Annual Report for Year Ending Sept. 1948. Engineers' Council for Professional Development, 29 West 39th St., New York 18, N. Y. 40 pp.

——General Assistance Operations of Public Agencies in Selected Large Cities. A Monthly Bulletin. Dec. 1948. Federal Security Agency, Social Security Administration, Bureau of Public Assistance, Washington, D. C. Mimeo. Tables. 8 pp.

WAYNE COUNTY, MICH. — Annual Report 1948. Board of County Road Commissioners, Wayne County, 3800 Barium Tower, Detroit 26. Illus. Tables. 108 pp.

WESTMINSTER, MD.—Report from City Hall, 1947-1948. Graphs. Illus. Unpaged.

WINSTON-SALEM, N. C. — Statement of Financial Information. Jan. 1, 1949. Department of Public Accounts and Finance, Winston-Salem. Tables. 14 pp.

WISCONSIN—The Powers and Duties of Presidents in Wisconsin Villages. League of Wisconsin Municipalities, 30 E. Johnson St., Madison 3. April 1949. Mimeo. 11 pp. $1.

WYANDOTTE, MICH.—Annual Report of the Department of Municipal Service, 1948. Tables. Graphs. 33 pp.

Planning and Housing Reports

CANADA—Community Planning in Canada. A graphic summary of the plans recently made by a number of Canadian communities for their development. Community Planning Association of Canada, 56 Lyon St., Ottawa. 1948. Illus. Maps. 56 pp. 25 cents.

CHICAGO, ILL.—Chicago Civic Center. Chicago Plan Commission, City Hall, Chicago 2. Illus. Maps. 39 pp.

—Memorandum on Relocation. Chicago Housing Authority Experience. Chicago Housing Authority, 343 S. Dearborn St., Chicago 4. 1949. Illus. Maps. Mimeo. 41 pp.

COOK COUNTY, ILL.—Scoring Community Desirability. Housing Authority of Cook County, 33 North La Salle St., Chicago 2. Mimeo. Tables. 17 pp.

LOS ANGELES COUNTY, CALIF.—Report on Master Plan of Parks. 1948. The Regional Planning Commission, Los Angeles County Regional Planning Commission, Los Angeles County Planning District. Mimeo. Charts. Maps. Graphs. 177 pp.

MARYLAND—Survey of Local Planning in Maryland. 1948. Maryland State Planning Commission, 100 Equitable Building, Baltimore 2. Mimeo. Maps. Tables. 61 pp.

MICHIGAN—The Population of Michigan 1840-1960: An Analysis of Growth, Distribution and Composition. 1949. By Amos H. Hawley. Bureau of Government, University of Michigan, Ann Arbor. Tables. Graphs. 116 pp.

NEW YORK, N. Y.—New York City's 1950-1954 Requirements for Capital Funds. 1949. The City Planning Commission, Municipal Building, New York 7. Graphs. Tables. 16 pp.

PASSAIC COUNTY, N. J.—County Review of Subdivisions in Passaic County. Passaic County Planning Board, County Administration Building, Paterson 1. Mimeo. Charts. Tables. 15 pp.

PROVIDENCE, R. I.—A New Zoning Ordinance for Providence. 1948. Publication No. 6. The City Plan Commission, City Hall, Providence 3. Feb. 1949. 79 pp.

TENNESSEE—Vacations—A Major Tennessee Industry. Tennessee State Planning Commission, 432 Sixth Ave. North, Nashville 3. Publication No. 202. May 1949. Mimeo. Illus. Maps. 21 pp. 50 cents.

UNITED STATES—The Role of the University in Housing Research. By Ernest M. Fisher, Columbia University, New York, N. Y. Jan. 1949. 9 pp.

—The Study of Urban Land Use Problems. By Ernest Fisher. Columbia University, New York, N. Y. April 2, 1949. Mimeo. 4 pp.

WISCONSIN — Local Planning and Development. Bulletin No. 18. Feb. 1949. Wisconsin State Planning Board, Madison. Mimeo. Graphs. Tables. 55 pp.

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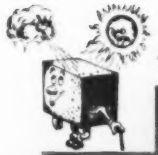

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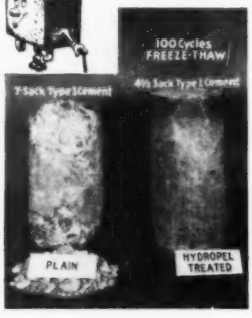

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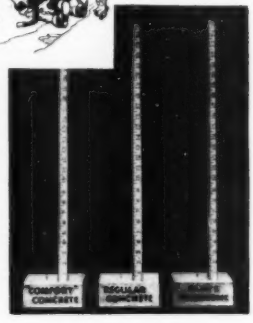

The rebound of steel balls shows how Hydropel "Comfort" Concrete absorbs impact. Humans and animals like its resilience and dry warmth.

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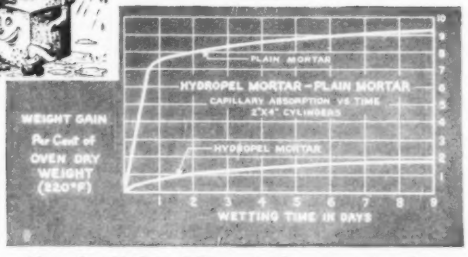

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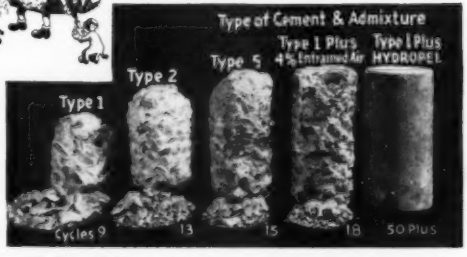

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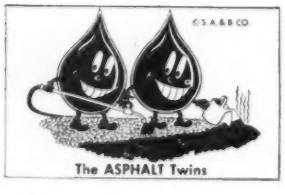

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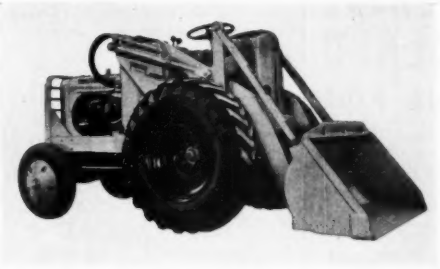
News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

New Loader From Tractomotive Corp.



The Tractomotive Corp., Deerfield, Ill., manufacturers of the Tracto-Shovel for the Allis-Chalmers Model HD-5 Track-Type tractor, is now making a materials-handling loader with a $\frac{1}{2}$-cubic-yard bucket.

The TL-W Tracto-Loader is mounted on rubber tires and has the bucket over the driving wheels and the steering wheels in the rear, providing exceptionally good traction and making steering easier—particularly where the going is soft. Twelve feet long with bucket down, and with a width of 5 feet 9 inches, outside tire measurements, it is small enough to be used where working areas are limited. Close-quarter operation is possible because the bucket eases into the material to be loaded and picks up the load through crowding and an automatic "tilt-back" feature. Since the machine does not have to ram into the material, loading is speeded up and spillage held to a minimum.

Hydraulically controlled, the bucket can be dumped in part or all at once, and fully loads the average dump trucks.

Traffic Controllers and Signals

"No two cities have the same traffic problems," is the opening sentence of a new General Electric bulletin. This fact is understood by traffic engineers and to an increasing degree by the host of traffic experts in nearly every large city who have expressed their views on the subject. Most intersections need only a simple two- or three-movement cycle, and this bulletin describes the GE Type DH controllers.

It is frequently desirable to use multi-dial controllers to provide a change in percentage split at one or more intersections in an interconnected system, at an isolated intersection, or when an exclusive pedestrian interval is needed. Percentage split means the way a total time cycle is divided between main and cross-street green intervals. The need for this change in percentage split occurs when traffic on one street grows heavier at some time of the day or when there is a shift of heavy traffic volume from one street to the other and then back at regular intervals. A second GE bulletin describes and illustrates the DHM multi-dial controller, and also the control system, which permits this adjustment of signal-to-flow to be made.

A third bulletin describes the adjustable signal heads consisting of a single signal section or of two or more sections. At complex intersections or where the streets do not cross each other at right angles, the signal faces can be set to provide visibility from any direction desired.

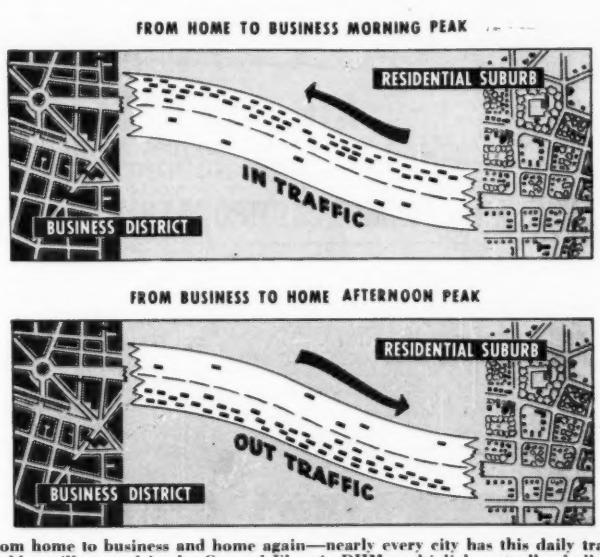
They may be obtained from the Apparatus Department of the General Electric Co., Schenectady, N. Y.

Nelson to Direct Pontusco Corporation

H. Lloyd Nelson, eastern sales manager of the United States Pipe and Foundry Co., Burlington, N. J., has been granted a leave of absence to serve as president and general operating manager of the Pontusco Corp.—owned by U. S. Pipe and Foundry and by the Compagnie de Pont-a-Mousson of Nancy, France—and of the Pontusco Corp. of Cuba, a subsidiary.

H. Lloyd Nelson

Pontusco was formed in 1946 to manufacture concrete pipe and associated products in North, Central, and South America. Its subsidiary recently constructed a plant at Cotorro near Havana, Cuba, and has manufactured for the Cuban government a very large order for 24-, 30-, and 36-inch prestressed non-cylinder reinforced concrete water pipe for 150 pounds' working pressure. This non-cylinder pipe, an 11-year-old development of Pont-a-Mousson, is used extensively in France and North Africa.



From home to business and home again—nearly every city has this daily traffic problem, illustrated in the General Electric DHM multi-dial controller bulletin. The triple-offset feature available with this controller provides the flexibility required to handle the three traffic conditions: "normal," "in," and "out."

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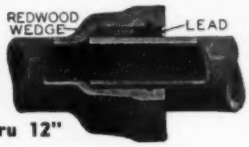

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Contain 34.5% DDT CONCENTRATE in Soluble Capsules
TOSS IN WATER FOR 100% KILL
OF ALL SPECIES
45 TOSSITS larvacide 1 acre—
Each Tossit covers 1,000 sq. feet.
CHEAPER—FASTER—INSTANTLY
AVAILABLE
FOR INSPECTORS & HEALTH WORKERS
Packed 1,000 TOSSITS to carton
in Sealed Containers
List Price $20.50 per 1,000 Tossits
See Your Jobber Or Write

SOUTHERN Entomological COMPANY
2400 Tamarind Ave. West Palm Beach, Fla.

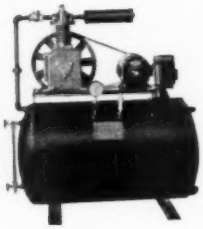
APCO-V-APCO PRIMERS

No. IV-APCO

FOR CENTRIFUGAL PUMPS
AUTOMATIC POWER OR TANK PRIMERS
SINGLE OR DUPLEX UNITS
DUAL DRIVE WITH GASOLINE ENGINE
ALL UNITS ENTIRELY AUTOMATIC

AIR RELEASE VALVES

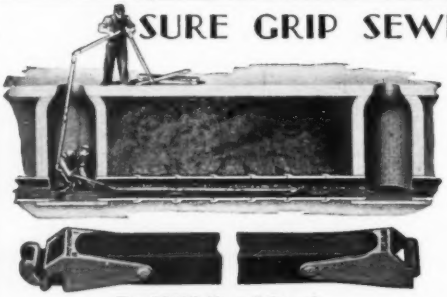
FOR VENTING AIR OR GASES
17 TYPES



No. 2V-APCO

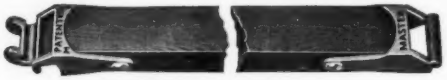
VALVE AND PRIMER CORPORATION 127 NORTH DEARBORN ST., CHICAGO, ILL.

SURE GRIP SEWER RODS and ACCESSORIES



The REGULAR, a light rod,
Fir stock 1¼ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.

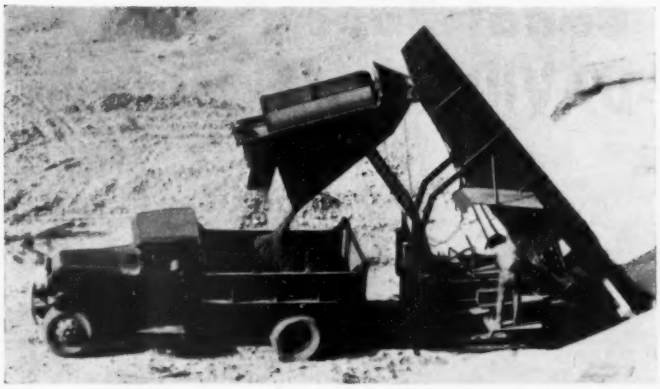


The MASTER, a heavy duty rod,
Fir stock 1½ x 1½ inch square.

Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.
NAPPANEE, IND.

Rotary Screen Loader Digs, Screens, Loads In One Operation



Featuring one-man operation, the new automatic rotary screen loader introduced by N. P. Nelson Iron Works, Clifton, N. J., separates sand and gravel as it digs and loads into trucks.

The unit consists of a Nelson rotary screen mounted on a self-powered Nelson Model Q-10 heavy-duty bucket loader; in operation the screen is synchronized with the bucket conveyor of the loader. Two chutes at right angles direct the flow of separated materials. When digging and loading materials that do not require screening, a throw-out clutch enables the operator to disengage the screen and deflect material through the lower chute. Screening capacity of dry mixtures ranges from 1 to 2 cubic yards a minute.

The bucket loader on which the rotary screen is mounted features the Nelson steel-toothed feeder that picks before it shovels so that, by dislodging the material and spiraling it into the buckets, extra manpower for shoveling and loosening the bank is eliminated.

Coating Pipe Sections

In any coating operation undertaken by the Koppers Co., Inc., Pittsburgh 16, Pa.—as, for example, the 14-mile-long water line completed in Savannah, Ga.—the pipes first are cleaned and then sprayed inside and out by guns shooting black Bitumastic 70B, a primer coating manufactured by the company.

The next phase is the coating machine, a spider-like steel structure with a large tank on top. The pipe section is rolled to position on a low platform with two wheels on each end that raise the pipe and hold it several inches above ground level. From the heating kettles on the coating machine, Bitumastic Enamel is placed in a long trough; the wheels holding the pipe begin to turn and increase in speed. The trough filled with the hot coating is pushed into the revolving pipe and turned on its side. With a splash the hot material is dumped inside the whirling pipe and within a minute the coating is evenly applied by centrifugal force.

The coating machine then rolls along the top of the spinning tube, spilling the hot outside coating. Bitumastic coatings prevent rust, corrosion, and tuberculation on oil, gas, and water lines.

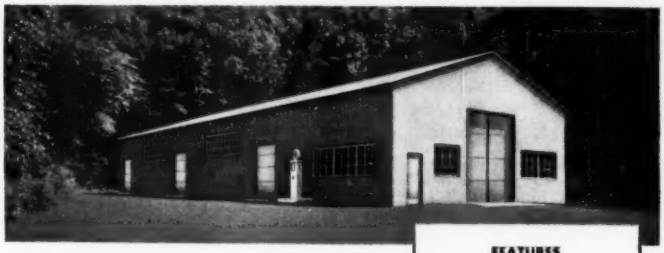
This pipe is resting in position for coating. Notice the long trough holding Bitumastic ready to be inserted as soon as the pipe reaches sufficient spinning speed.

Charles M. Upham Honored By Engineering Fraternity

Charles M. Upham, engineer-director of the American Road Builders' Assn., Washington 4, D. C., will receive an award for distinguished professional attainment from Sigma Tau, a national honorary engineering fraternity.

C. M. Upham

Mr. Upham, whose career began over 40 years ago, organized the Delaware and North Carolina highway engineering departments and did extensive consulting work in Latin America prior to his association with the ARBA, of which he has been the director since 1926.



DON'T LET HIGH COSTS HOLD YOU UP!

Many communities are saving up to 30% on their new buildings

The municipal garage pictured above is just one example of how Standard Buildings by Luria are providing *permanent*, low-cost housing for any number of municipal needs. For Luria offers a complete line of heavy steel-frame structures that cost little or no more than light-weight "prefabs" and much less than specially-engineered buildings. Luria buildings can easily be adapted to meet your precise requirements for many one-story structures—including airport buildings and schools. Moreover they are available now, ready for prompt delivery. Write today for our new 20-page catalog on the complete line.

FEATURES

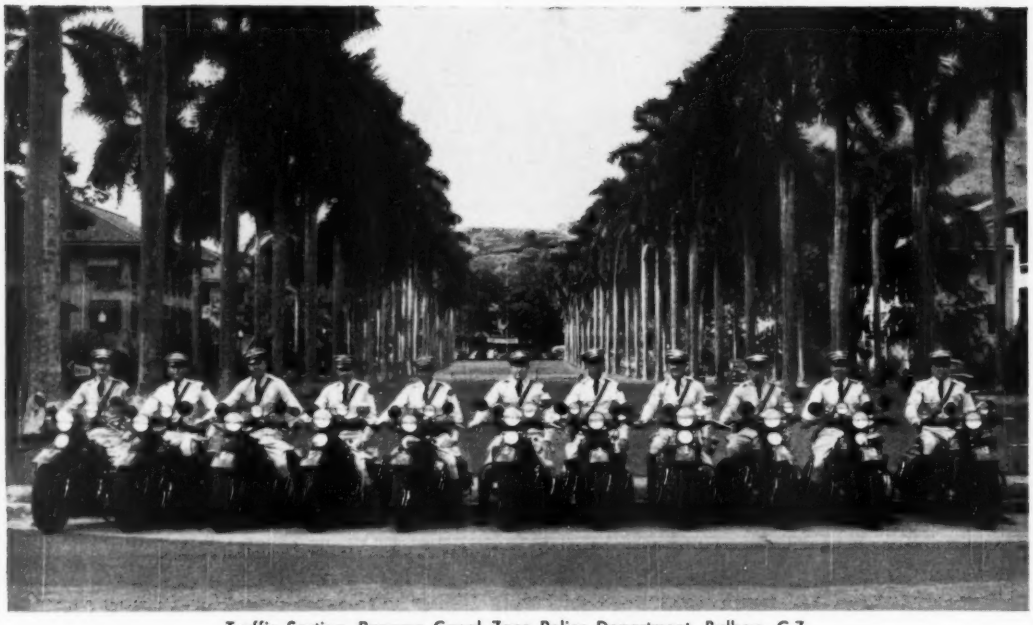
- Rigid-Frame Construction without space-consuming trusses
- Clear spans of 40 to 100 feet
- Eave heights of 12 to 20 feet
- Lengths as desired in 20-foot increments
- Wide choice of standard alternates, optional features, and collateral materials

Standard Buildings by LURIA

LURIA ENGINEERING CORPORATION, Dept. Y32
500 Fifth Avenue,
New York 18, N. Y.

"Underneath the Sheltering Palms"

Panama Canal Zone Police use HARLEY-DAVIDSONS *Exclusively!*



Traffic Section, Panama Canal Zone Police Department, Balboa, C.Z.

ALONG the course of the great Panama Canal, vital waterway of the Americas, Harley-Davidsons are on ceaseless patrol. In service with the Panama Canal Zone Police Department, their performance and dependability have established an enviable record. Over the years, they have made arduous police work under tropical conditions easier, more effective . . . and more pleasant. Through their use, police manpower is utilized to better advantage, and law enforcement and traffic control are greatly simplified.

Your community also can increase the effectiveness of police manpower, improve traffic control and reduce accident rates through use of Harley-Davidson Police Motorcycles, Servi-Cars and Sidecars. Ask your dealer to tell you about the many ways in which Harley-Davidsons can help to increase the efficiency of your traffic department.

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

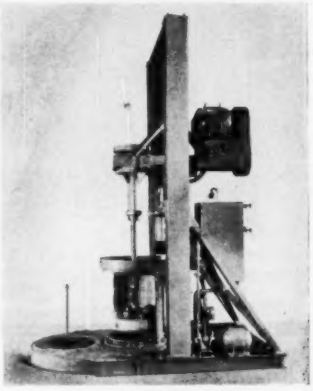
MOTORCYCLES POLICE BETTER TRAFFIC CONTROL **SERVI-CARS**

A Payloader Sets the Stage For Better Street Lighting

A Hough Payloader, manufactured by the Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Ill., not only handles digging, loading, and material-handling jobs but also, as seen here, may be used for such diversified tasks as elevating a workman as he welds an addition to the top of a street-light pole in Lackawanna, N. Y.

Pipe-Making Machine For 4- to 24-Inch Diameters

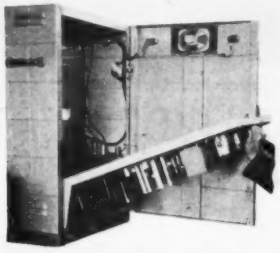
The Martin Model 48 concrete-pipe machine, manufactured by the Martin Iron Works, P. O. Box 2857 Terminal Annex, Los Angeles 54, Calif., makes concrete pipe in sizes from 4 to 24 inches and produces up to 2 joints per minute. Known as a packerhead machine, it produces pipe by the troweling action of a rotating head revolving and rising in a steel form or jacket.



The Martin Model 48

Emergency Radio Station Is Compact

A new, compact central-station unit for use in FM radiophone communications systems in the 30 to 50 mega-



cycle and 152 to 162 megacycle bands has been announced by the Philco Corp., Tioga and C Streets, Philadelphia 34, Pa. All the essential equipment with the exception of the microphone and antenna system is housed in a cabinet, suitable for desk or wall mounting, 38 inches high, 25 wide, and 11¼ deep. The equipment chassis are mounted on a standard-size relay rack hinged at the bottom to permit tilting the equipment forward for easy access to the rear of the chassis.

For operation in the 30-to-50-megacycle band, there is a choice of a 30-watt or 50-watt transmitter. On the 152-to-162-MC band, the rated transmitter output is 40 watts.

Clay Pipe Manufacturers Hold Annual Meeting

At the annual meeting held in Chicago of the National Clay Pipe Manufacturers, Inc., 100 N. LaSalle St., Chicago 2, Ill., John M. Palmer of the Lee Clay Products Co., Clearfield, Ky., was re-elected president; D. M. Strickland was re-elected vice-president, and John D. Cook was again elected to the post of secretary-treasurer.

Three manufacturers were elected to membership: Evans Pipe Co., Uhrichsville, Ohio; Peerless Clay Products Co., Toronto, Ohio; Claremont Clay Pipe Co., Pittsburgh, Pa.

The members of the Board were all elected.

Say what you will . . .
THERE WILL NEVER BE TOO MANY PLAYGROUNDS

"PLAY BALL" . . . the call heard on Sand Lots and in the Big Leagues is typically American. Wise city fathers and recreational directors give attention to thickly-populated neighborhoods and plan recreational spots to combat delinquency, vandalism and "just plain orneriness" . . . it makes sense. Give the kids who are "Thorns in the Side," of factory owners good night time playing facilities and they become well behaved.

Revere ELECTRIC MFG. CO. CHICAGO, U.S.A.

FLOODLIGHTING
TURNS WASTE LOTS INTO PLAY SPOTS

WRITE FOR CATALOG

It's surprising what you can accomplish with a few REVERE long-range floodlights to convert an old factory site into a play lot. Softball in summer, football in winter. The kids will help keep up the grounds . . . given half a chance.

We'll Help You Plan

Write today for our Sports Lighting Catalog. It has diagrams for all types of playing fields that will give you ideas. For a minor outlay in equipment and well-directed play activities, you can bring happiness to hundreds of youngsters. Why not get this information . . . NOW

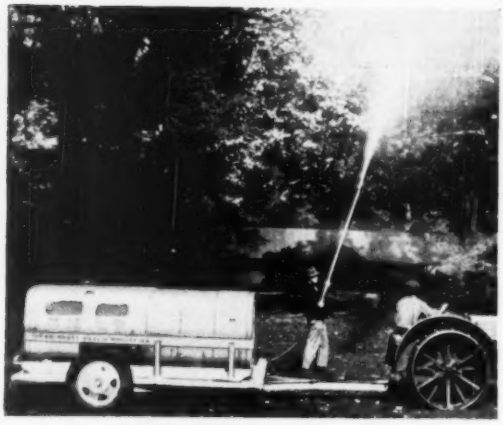
REVERE ELECTRIC MFG. CO.

6015 BROADWAY **CHICAGO 40, ILLINOIS**

Indoor and Outdoor Lighting Equipment to Serve Every Need

TAKE OFF YOUR HAT TO
MYERS
PUMPS · WATER SYSTEMS · SPRAYERS · HAY TOOLS

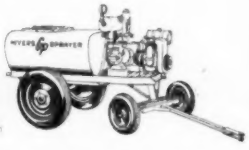
for all Municipal Spraying Jobs!



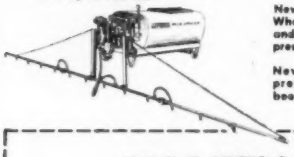
Myers Sprayers are justly famous, both for their efficiency and economy, for spraying trees and shrubbery . . . weed, fly and mosquito control . . . whitewashing, disinfecting and a host of other municipal uses. There's a full range of Myers Sprayers, types and sizes ideally suited to every requirement.

The name Myers on a sprayer is your surety of top quality; finest materials and workmanship for long, dependable service. All Myers Sprayers are simple and compact, strong and sturdy — and offer many outstanding operating features. Mail the coupon for folder showing the wide range of sprayers, guns, booms, nozzles and fittings in the complete Myers line.

Wheel and skid-type sprayers; capacities up to 50 gpm; pressures up to 800 lbs.



New General Purpose Sprayer. Wheel and skid-types for gun and boom use. Capacity, 7 gpm; pressures up to 400 lbs.



New Weed Sprayer. 60 lbs. pressure. 21-foot adjustable boom.

THE F. E. MYERS & BRO. CO.
Dept. N-194, Ashland, Ohio
Send folder showing sprayers for municipal use to:

NAME_____

TOWN_____

COUNTY_____ STATE_____

Pick up leaves the easy way
With EGAN LEAF COLLECTOR

Here is the Simple, the Cheap Way of Clearing Your Streets of Fallen Leaves

IF you have about 50 miles of streets to keep clean of leaves, and that's about an average sized city, you need only one Egan Leaf Collector, one truck and three men. With the use of this combination you get the *smallest cost per yard of collected leaves.*

The Egan Leaf Collector can be temporarily installed on any truck, and easily removed . . . It shreds and compresses leaves into a small space . . . The Egan Unit easily handles both wet and dry leaves at one-tenth the cost of hand labor.

WRITE US TODAY FOR COMPLETE DATA

DEEPHOUSE EQUIPMENT CO., Inc.
Leaf Collector Division
162 Farmington Ave. Berlin, Connecticut

VALVES & HYDRANTS

M & H products, including pipe line accessories, are well known for high quality of material and expert workmanship. They are made according to standard specifications and have been used for many years throughout the country. Write for Catalog No. 34. Address M & H Valve and Fittings Company, Anniston, Alabama.

THE MUNICIPAL INDEX

Saves your catalog from the wastebasket. It reaches the buyer when he's buying.

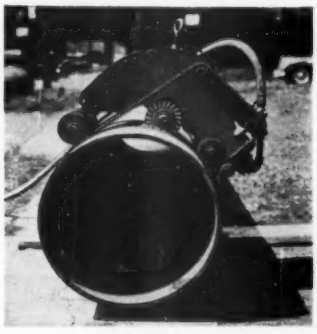
Approximately 16,000 city and town officials and private water company superintendents who receive the annual Municipal Index use it regularly as a buying guide.

THE MUNICIPAL INDEX
470 Fourth Avenue New York 16, N. Y.

Air-Powered Pipe Saw Cuts 2 Inches Per Minute

The new air-powered pipe saw from E. H. Wachs Co., 1525 N. Dayton St., Chicago 22, Ill., cuts cast-iron or steel pipe from 12 to 48 inches in diameter at the rate of 2 inches per minute. Using a high-speed steel milling cutter, the machine leaves clean-cut milled edges and requires only 85 pounds of air pressure for operation. Changes in adjustment for different pipe sizes are made by setting guide rollers and altering the two travel-chain lengths.

Strapped tight to the pipe by two



silent-type chains that act as a flexible ring gear for positive feed and automatically compensates for pipe swells and irregularities, the saw travels around the pipe as it cuts, making the cut in one complete rotation.

Cuts above ground are made by rolling the pipe on skids, while underground cuts require 14-inch clearance in the ditch. The saw is portable and can be handled and set up by two men in about 15 minutes.

Burgess-Manning Appoints Division Sales Managers

S. G. Paddock **H. A. Dietrich**

Both S. G. Paddock, appointed sales manager of the Petroleum Division of the Burgess-Manning Co., Libertyville, Ill., and H. A. Dietrich, appointed sales manager of the Railroad Division, have been with the parent company, Burgess Battery Co., or its subsidiaries for over a decade.

Mr. Paddock has held the positions of engineer, sales engineer, and assistant sales manager. In 1940 he was sent to study the application of Burgess-Manning products to the oil industry and in this capacity aided in the development of snubbers particularly suited for use on various diesel and gasoline engine applications.

Sales correspondent, sales engineer, liaison and development engineer—these are the positions that Mr. Dietrich has held, starting with the Thordarson Electric Mfg. Co. in 1935, and switching to Burgess Battery four years later.

Oren Roanoke Appoints Distributors

Zabek Motor Sales, Palmer, Mass., has been appointed Massachusetts distributors for the Oren Roanoke Corp., P. O. Box 264, 1201-09 West Salem Ave., Roanoke, Va., handling Oren fire apparatus including equipment built on commercial or special chassis, fire hose, and the three-stage pumper.

Hepburn Receives Worthington Appointment

James W. Hepburn has been appointed assistant manager of the Vertical Turbine Pump Division of the Worthington Pump and Machinery Corp., Harrison, N. J.

Making his headquarters at the corporation's Denver works, he will be responsible for customer relations in the territories west of the Mississippi River.

TARCO

can carriers

"Street Sweeper's Friend"

Single-piece welded frame. For one or two cans. Choice of tiring: plain steel, solid rubber, tough-walled pneumatics. Bearings: plain or roller. Full swiveling caster wheels. Silent can clamp. Safety warning flag. Balanced and light running.

Tarco welded carriers are STRONG.

TARRANT MFG. CO.

East Ave. Saratoga Springs, N. Y.

Another "Ace"

♠

1 by

Fisher

A♥

M-SCOPE

ELECTRONIC BOX LOCATOR

Locates hidden service boxes, etc., as fast as a man can walk. . . . It's faster — and more accurate — than the old "dip-needle" methods.

Free Illustrated Booklet

Fisher Research Laboratory, Inc.

PALO ALTO • CALIFORNIA

You should talk to the owner of this truck!

International KB-7 with dump body

THE OWNER of this International KB-7 uses a dozen International Trucks in his engineering work. (Four are dump trucks, 2 flat beds, 1 oil spreader and 5 Concrete Ready-mix.) He knows what they can do, and how well they do it.

He speaks from experience when he says:

> "The new KB-7 dump truck is a pleasure to drive, and has been getting 9½ miles to the gallon of gas under conditions which should use a good deal more—that is, a lot of starting and stopping and short hauls."

And we aren't exactly speaking as amateurs in the business when we tell you this:

International Trucks are the products of 42 years of real truck engineering. They are available in 22 basic models, 1000 truck combinations, gross weight ratings from 4,400 to 90,000 pounds—to give you the truck that's specialized right for your job. And, they're backed by the nation's largest exclusive truck service organization.

Talk to any International Truck owner. Talk to any International Truck driver. Then you'll know why it will pay you to see your International Truck Dealer for the very next truck you buy. Call him soon.

International Harvester Builds McCormick Farm Equipment . . . Farmall Tractors . . . Industrial Power Motor Trucks . . . Refrigerators and Freezers

Tune in James Melton and "Harvest of Stars" NBC, Sunday afternoons

INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY • CHICAGO

Gravity Feed Paint Striper Has No Brush, No Engine

The Universal Marine and Mfg. Corp., 137 Alexander St., Yonkers 2, N. Y., have controlled-flow paint stripers for road use that feature brushless gravity feed of any standard striping or zone paint.

The spreader, entirely of steel, rolls the paint evenly over the entire width of the stripe in widths of 2 to 8 inches—interchangeable buf not adjustable. A distributing apron receives the paint from the gravity line and feeds it evenly to the finger rollers, which spread it on the concrete, asphalt, wood, macadam, or any other paving surface that is reasonably smooth.

Since no pressure is required, there is no need for an engine, compressor, or pump, and the steel spreader is easy to clean and maintain, while lasting a long time.

The spreader is arranged to the side to give the operator a clear view of the line while the machine is in operation and eliminate his straddling the line while painting.

Model A has a 9-gallon tank with a funnel-shaped bottom to assure complete flow by gravity. Model B, similar in design, has a 5-gallon tank.

Services Of The Puromat Co.

The Puromat Co., 57 E. Van Buren St., Chicago, Ill., was formed a half year ago primarily to render engineering assistance to manufacturers of water- and sewage-treatment equipment, and as a distributor for chemical-treatment units. The new company has developed electric and hydraulic control equipment for filters, softeners, and other units, and a number of similar items for different water- and sewage-treating processes. It specializes in control layouts for automatic purification equipment.

The company is headed by Frank D. Prager, previously with the Graver Tank & Mfg. Co.

It's *yardage* that counts! And my MICHIGAN has convinced me that you don't always need a big dipper to get big yardage. No matter what I put her on—sand, gravel, clay, rock—that baby *really* goes to town! Gets out more yardage per hour than any shovel that size I've ever owned. She crowds and swings fast, and dumps fast and clean. When anyone says truck shovels to *me*, I say, my *next* one's a MICHIGAN, too!' For the best 'buy' in a truck shovel, get a MICHIGAN!"

Write for Bulletin 100—
"On the Job With MICHIGAN"

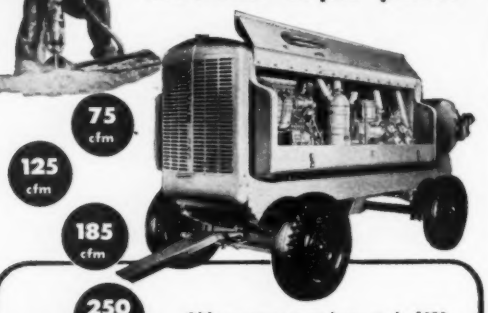
DID YOU KNOW you can buy a brand new **MICHIGAN TRUCK CRANE** complete with chassis for as little as $10,250 F.O.B. factory?

MICHIGAN

MICHIGAN POWER SHOVEL COMPANY
373 SECOND STREET, BENTON HARBOR, MICHIGAN

4 DAYS' FOOTAGE DRILLED IN 3

with JAEGER "air-plus" pressure



Old compressor ratings, set in 1932, underpower today's tools. Jaeger gives you the air you need to maintain steady 90 lbs. pressure in a full set of tools, make tools hit harder and faster, do 30% to 40% more work in the same number of hours. Ask your Jaeger distributor.

THE JAEGER MACHINE COMPANY
Columbus 16, Ohio

Leading distributors in 130 cities sell, rent and service Jaeger Engineered Equipment.

PUMPS • MIXERS • HOISTS • PAVING EQUIPMENT

CUT COIN HANDLING COSTS

PARKING METERS! PARKS! SCHOOL CAFETERIAS!

WITH A **KLOPP** COIN COUNTER and PACKAGER

In time saved — Klopp Coin Counters will pay for themselves in a few weeks.

Illustrated
MODEL "DE"
ELECTRIC
$283.00

MODEL "D"
MANUAL
$175.00
(Fed. Excise Tax Waived)

Speed, accuracy, convenience and many years of trouble free service are characteristics of Klopp machines. Capable of counting *and* packaging from 1500 to 2000 coins a minute. Adjustment to various denominations is simple—Two models cover any need.

KLOPP ENGINEERING COMPANY
5736 TWELFTH STREET DETROIT 8, MICH.

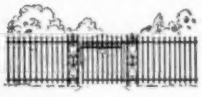
Stewart Chain Link Wire Fence is available in several heights, weights and styles to meet the degree of protection desired.

● **Stewart Chain Link Wire and Plain or Ornamental Iron Fences and Entrance Gates** are made in a sufficiently wide range to adequately cover the fencing requirements of all classes of public property.

DON'T OVERLOOK STEWART

If your plans call for Iron or Wire fencing

Stewart Plain or Ornamental Iron Fence is made in a wide



variety of designs for all classes of public property.

Stewart All Steel Settee—Durable, attractive—in 4', 5' and 6' lengths.

In addition to fence, Stewart produces many other iron, wire and bronze products for the protection and beautification of public property. Catalog sent on request: when writing, mention products in which you are interested.

Stewart IRON and WIRE FENCES

THE STEWART IRON WORKS CO., INC.
1621 Stewart Block
CINCINNATI 1, O.
Experts in Metal Fabrications since 1886

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

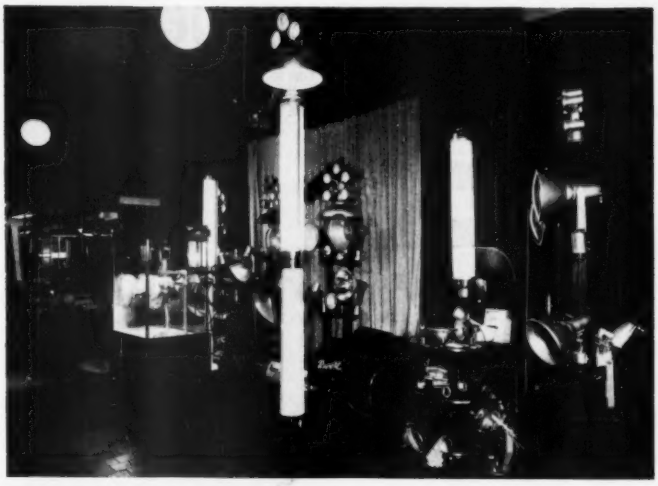
Prompt Shipment

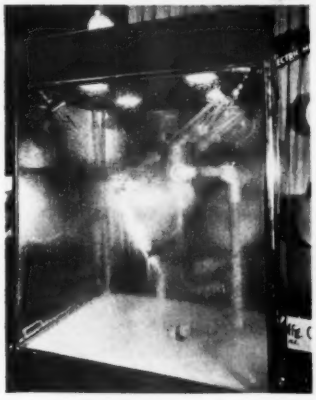
Inquiries and orders solicited

NORTHERN GRAVEL COMPANY
Muscatine, Iowa

P. O. Box No. 307 **Phone: 193**

Weatherproof Floodlights





Here are two views of Revere floodlights. The one at the top shows our display of numerous types shown at the Third International Exposition. The feature of the display directly above shows one of our Alzak aluminum 1,500-watt floodlights burning in a tank with four streams of water pouring on it throughout the entire period of the show. Irrespective of the height of the pole or tower this fixture can stand all kinds of weather.

Equally dustproof, this light is suitable for lighting airport obstructions, construction jobs, materials yards, sports and recreational areas. Easy to wire and service, the lamp has the following capacities and characteristics:

Type of Lens:	Wide-Beam Reflector Beam Spread	Wide-Beam Reflector Beam Lumens	Narrow-Beam Reflector Beam Spread	Narrow-Beam Reflector Beam Lumens
Pain	68°	19200	35°	16412
Stippled	85°	18900	48°	19500
Ribbed	70° x 98°	18000	36° x 58°	19000

VAN N. MARKER, *President*
Revere Electric Manufacturing Co.
6009 Broadway, Chicago 40

Large Bond-O Gaskets

Bond-O rubber packing gaskets used in place of braided jute for cast-iron pipe joints are now available from Northrop & Co., Inc., Spring Valley, N. Y., in sizes for pipe up to 36 inches in diameter; sizes larger than 36 inches can be manufactured to order by the company.

—Certainly—

Sewage Treatment costs can be reduced!

CLOROBEN
proves it

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Springfield, Missouri reports its results

Reprints available soon.

THE CLOROBEN CORPORATION
15 EXCHANGE PLACE, JERSEY CITY 2, N. J.
The Pioneers of Up Sewer Treatment

Plastic Rock ... THE IDEAL SIDEWALK SURFACING

Here is a *modern,* thoroughgoing method of renewing city sidewalks and protecting the valuable rental space underneath. Plastic Rock processes make an enduring job, waterproof where necessary; not affected by heat or cold; easy to apply; absolutely slip-proof wet or dry; applied without interruption of traffic; dry ordinarily in 24 hours. Used and praised by many large cities and property owners. Plastic Rock is packed complete in sealed barrels; ingredients are uniform; merely add water; U. L. I. field supervision is available without obligation.

Write for Our Report No. 220-36

UNITED LABORATORIES, Inc.
16814 Euclid Ave., Cleveland 12, Ohio

We shall be glad to give you a complete, reliable report on your sidewalk situation. No obligation.

PRODUCTS AND PROCESSES for PROTECTING PROPERTY
Field Representatives All Over The World

Protect the health and well-being of YOUR CONSTITUENTS

with TIFA . . .

. . . DEATH-DEALING FOG FOR INSECTS

Better control of insects means better health for your community. If your citizens are plagued by annoying flies or mosquitoes, let TIFA attack that problem—quickly, cheaply, efficiently.

TIFA—the portable, self-powered applicator—discharges chemicals in a true, clean fog which spreads rapidly . . . adheres to all objects . . . permeates every nook and cranny.

This scientifically proven method wins new friends each day. In 1948 more than 2,000 cities used TIFA treatments. And many more are planning TIFA programs this year.

Effective all over town . . . in parks, beaches and recreational areas, TIFA is equally well suited for work on outlying swamps, garbage and fill dumps. For your town's welfare, specify TIFA. You'll be astonished by its results.

TIFA **TODD INSECTICIDAL FOG APPLICATOR**

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A Product of

COMBUSTION EQUIPMENT DIVISION

TODD SHIPYARDS CORPORATION

81-16 45th Avenue, Elmhurst, Queens, N. Y.

Ralph B. Carter Announces Complete Line

The Ralph B. Carter Co., Hackensack, N. J., has announced that its full line of products is:

Pumps: self-priming centrifugal, diaphragm, vertical-caisson, jetting, plunger-pressure, electric, plunger-sludge.

Pneumatic sewage ejectors.

Clarifiers: for water and sewage treatment.

Digesters: fixed-cover, floating-cover.

Siphons: single, double, and plural alternating types.

Rotary distributors: siphon-fed, pump-fed.

Mechanical mixing equipment for water and sewage treatment: Slo-Mixers, Flocers, Kwik-Way mixers, flash mixers, flocculating equipment, rapid mixers.

Bit Developed to Drill Hard Concrete, Granite

The New England Carbide Tool Co., 60 Brookline St., Cambridge 39, Mass., has developed a carbide-tipped hammer bit to drill hard concrete and granite. Called the Thunderbolt, it can be used in any type of electric hammer.

Available in sizes ranging from 3/16th to 1 inch, the Thunderbolt as averaged a cost of 2 cents per hole, with no resharpening, and 3 cents per inch in drilling granite.

Burroughs Catches Up And Advances

During 1948 and the first three months of 1949, in order to hasten the filling of backlog orders, Burroughs scheduled its unit-production rates on a higher basis than at any other time in its history, says President John S. Coleman. Commencing in mid-1948, as some of these backlogs were liquidated, the company was able to begin eliminating the overtime operations which this accelerated schedule had called for, and finally on April 1, 1949, was able to discontinue the night shift.

Plans have flowered for marketing Bell & Howell microfilm equipment through Burroughs' world-wide sales and service organization. Training schools have been conducted in 22 cities throughout the United States, and the entire field organization has now been prepared for this new activity. Plans are being completed for the establishment of 20 processing centers in strategically located cities, to handle the development of film for users of Burroughs microfilm equipment.

Dr. Irven Travis, a professor on the faculty and former Supervisor of Research of the University of Pennsylvania's Moore School of Engineering, has been appointed to a newly created position of Director of Research of the Burroughs Adding Machine Co., Detroit 32, Mich. Dr. Travis' work will be principally in the field of electronic computing devices.

One Electrode Welds Most Steels

A universal steel-welding electrode suitable for most steel-welding operations is offered by Eutectic Welding Alloys Corp., 40 Worth St., New York 13, and described in a six-page folder. Quick attention is given to the numerous types of steel, such as clad, alloy, cast, cold rolled, manganese, stainless, tool and die, to which these low-temperature alloys may readily be applied. The physical properties and operating currents of the dectrodes are presented, making this bulletin a complete, easy-to-understand source of information for arc welding of all steels, both from a practical and informative viewpoint.

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A soundly designed sturdily built precision *Quality* locator

The *Quality* locator that has set new high standards for performance

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LINE LOCATORS

used by leading utilities and municipalities. It is light but powerful—a simple one-man tool that does EVERY job.

Regardless of depth, no part of your underground pipe system can escape this electronic sleuth.

LIGHT • HANDY • POWERFUL

WILKINSON *Quality* LINE LOCATOR'S skill in detection is unhampered by powerful broadcasting stations or high tension lines. WILKINSON does the sorts of jobs that stymie ordinary devices.

Equip with a PROVEN *Quality* Professional Instrument

WILKINSON LINE LOCATOR

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Write for complete literature and prices

Originators of the quality, light, compact, all-purpose underground Locator.

WILKINSON PRODUCTS CO.

P. O. Box 1774, Wilshire-La Brea Station, Los Angeles 36, Calif.

Modernize—Powerize—Economize!

TURCO MAXI-POWER UNIT NO. 2

Models
VF3—Water-Cooled
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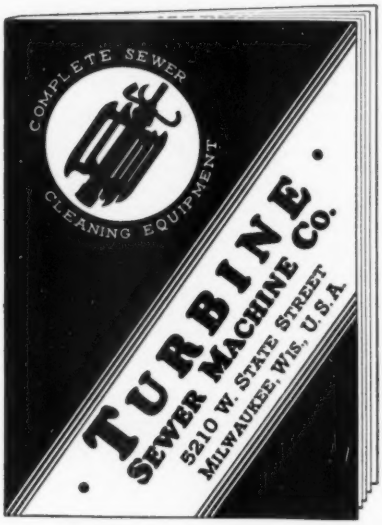
7 Power Sewer Cleaning Units *Offered by* TURBINE

Write for this catalog and get Maxi-Power specifications.



EXCLUSIVE FEATURES:

1. Tubular frame
2. Forged, inclosed gearing
3. One clutch
4. Flange ball-bearings
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6. 3-speed transmission
7. High-speed chain drive
8. No-clutch free spooling
9. Selected speeds
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A Filter Medium For All Purposes

Has outstanding advantages over sand and quartz media:

1. Length of filter runs doubled
2. Only about one-half as much wash water required
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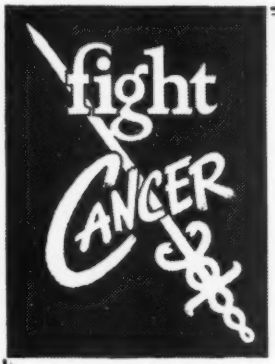
ANTHRACITE EQUIPMENT CORP.
Anthracite Institute Bldg., Wilkes-Barre, Pa.



"FIGHT CANCER"

Trite words? Not when you know the tragic facts of which these words are sum and substance. Last year more than 200,000 Americans died of cancer—rich and poor, young and old. Research and education are our most potent weapons in the war on cancer. Your contribution is needed to carry on the fight—to wipe out cancer—to guard yourself and your loved ones from this dread disease.

AMERICAN CANCER SOCIETY

New Whiteprint Machine Gives High Capacity Performance

When you are building an engineering project don't let lack of plans and prints prove a bottleneck in its construction. The new large-volume Whiteprinter just introduced by the Charles Bruning Co., 4754 W. Montrose Ave., Chicago, Ill., will guarantee that plenty of good, clear prints can be made available quickly.

An inexperienced operator can turn out high-quality prints quickly with the new Bruning Whiteprinter.

This new machine reproduces anything drawn, typed, written, or printed upon translucent mediums, at speeds up to 105 square feet per minute. Prints from post-card size up to those 42 inches wide and any length are made on the same machine with equal ease.

Called the Volumetic Model 93, it produces positive prints (black lines on white or tinted stocks) directly from the original drawing or document without intermediate steps; BW prints are exact copies of the original.

Requiring no special training, the operator simply feeds the material to be duplicated into the machine, and the rest is completely automatic. The prints are delivered in a few seconds—stacked, flat, and dry, ready for immediate use.

The process is odorless. The prints may be filed with other types of prints without fear of bleaching. Installation requires no plumbing connections, ventilating ducts, or darkroom.

Pennsalt Elects Officers

George B. Beitzel was elected president of the Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Philadelphia 7, Pa., on the eve of the company's 100th anniversary year.

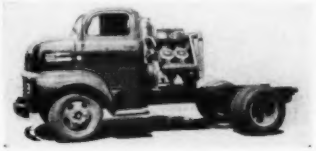
Leonard T. Beale, president for the last 20 years, will continue with the company as chairman of the board. William P. Drake was elected vice-president in charge of sales; William F. Mitchell, vice-president in charge of manufacturing. Mr. Mitchell succeeds Y. F. Hardcastle, who has retired from active participation in the chemical company's operation but remains as a member of the board.

Mr. Beitzel and Fred C. Shanaman, president of Pennsylvania Salt Mfg. Co. of Washington, wholly owned West Coast subsidiary, were elected to two new directorships created at a recent meeting of the board. Mr. Shanaman also is a vice-president of the parent company.

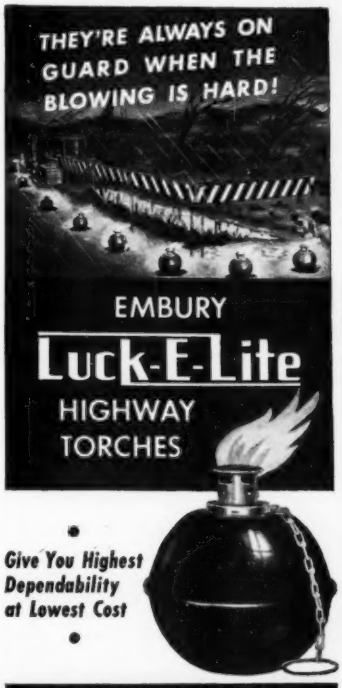
New Compressor From Davey

The Davey Compressor Co., Kent, Ohio, is putting out a 1949 model 160-cfm Auto-Air truck-mounted compressor that is driven direct from the truck engine through a Davey P-85 heavy-duty power take-off. The unit may be mounted directly on the truck chassis or on a platform base.

V-type with three low-pressure cylinders and one high-pressure, it is 46 inches long and occupies about one-third of the truck body space—the rest remains available for the transportation of men, tools, and materials.



The Davey compressor mounted on a Ford C.O.E. truck.


THEY'RE ALWAYS ON GUARD WHEN THE BLOWING IS HARD!
EMBURY
Luck-E-Lite
HIGHWAY TORCHES
Give You Highest Dependability at Lowest Cost
Order through distributors
EMBURY MFG. CO., WARSAW, N. Y.

EST. 1856
McDonald

McDONALD

EXTENSION SERVICE BOXES

McDonald "Minneapolis Pattern"

Designed for ½ to 1" sizes Minneapolis Pattern curb stops. Heavy cast iron bases tapped 1½" for ¾" and smaller stops, and 2" for 1" stops. Upper section is 1¼" pipe. Cast iron lid. Pentagon screw cap. Bronze coil spring in base section holds upper section where desired. Extension of 1½ feet is regular. Length extended, feet: 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 7½, 8 and 8½.

Plate E-5614

McDONALD

McDonald "Barry Pattern"

Made in two telescopic sections. Upper section is 1" black pipe with malleable iron cap. Lower section is heavy cast iron which straddles and protects the service stop. Has brass collar. Key furnished as part of service box. Extension of 1 foot is regular. For service stops ½ to 1 inch. Length extended, feet: 2, 2½, 3; 3½, 4, 4½, 5, 5½, 6, 6½, 7, 7½, and 8.

Plate E-5601

Send for complete description and prices

A. Y. McDONALD MFG. CO.

DUBUQUE, IOWA

BRASS GOODS • PUMPS • OIL EQUIPMENT

Be smart about your business . . . demand uniforms of

REEVES QUALITY FABRICS

Beyond compare for smart good looks and longer wear, Reeves Fabrics have what it takes to stand up under the punishment of repeated launderings . . . and still look fresh and crisp. For these Reeves Fabrics are made from carefully selected long-staple cotton . . . combed . . . Sanforized* . . . and vat-dyed in colors that are fast to sun, water and perspiration.

You benefit three ways. Smart looking uniforms boost employee morale...increase customer good will. Longer-wearing uniforms mean greater savings because they spread first costs.

Look for the Reeves Fabric Label—it's your sign of uniforms and work clothes that "mean business." Write today for complete information concerning your industry.

*Residual shrinkage less than 1%

"FROM COTTON TO CUTTER"

REEVES BROTHERS, INC.

54 WORTH STREET, NEW YORK 13, N. Y.

REPRESENTATIVES IN: *Akron • Atlanta • Boston • Chicago • Dallas • Los Angeles • Philadelphia • Portland, Oregon • St. Louis • Montreal • Toronto*

Joliet Gets New Equipment

Joliet Police Commissioner William Meade at Kaiser-Frazer's Willow Run plant, where this week he accepted the first units of a fleet of Kaiser Travelers which will be used exclusively by the Joliet Police Department. The new utility cars have passenger capacity of six persons and carry a collapsible stretcher for double duty as an ambulance or rescue vehicle. Shaking hands with Commissioner Meade is Pat Fahuy of Illinois Motors, Joliet Kaiser-Frazer distributor. The officers are, left, Sgt. Harry Thomas, Capt. Joe Trizna, Sgts. John Malloy and William Kwasnieski.

Southern Signals Available

Southern Signals, Inc., 222 Beach St., P. O. Box 1303, Shreveport, La., has purchased all jigs, fixtures, patterns, as well as certain orders on hand of Southern Switch and Signal Co., Inc., now out of business. The company offers a full line of traffic-signal equipment and related products. It also maintains a complete stock of parts for equipment manufactured by the old company and offers any replacements or repair service that may be required.

Inquiries have immediate attention. Products are traffic signals, controls, flashing beacons, and highway and bridge safety gates. The president and directing manager of Southern Signals is E. J. Schulenburg, who is also president of the Time-O-Matic Co., Danville, Ill.

Portland Cement Appointment

The Portland Cement Association, 33 West Grand Ave., Chicago, Ill., has appointed Leo H. Corning as manager of the Structural and Railways Bureau, succeeding the late Arthur J. Boase. Mr. Corning joined the Structural Bureau in 1929.

Clean Sewers With One Machine

The Stewart sewer machine, single-unit, double-drum, engine drive, does all the work over one manhole in one operation, accomplished by one man. Operating over one manhole, the unit is mounted on a balanced two-wheel trailer, equipped with water-cooled or air-cooled motor. The cable drum is equipped to hold 1,000 feet of ½-inch cable or 2,000 feet of ⅜-inch cable. An auxiliary drum holds 1,000 feet of ¼-inch cable.

It may be obtained with a LeRoi or Novo water-cooled motor or a Novo air-cooled motor. Power at slow speeds is attained through an automatic safety clutch which protects the machine in case of sudden overload. The safety clutch has instantaneous adjustments.

The machine in manufactured by W. H. Stewart, Inc., P. O. Box 767, Syracuse, N. Y.

FIGHTS DIRT—FIGHTS FIRE!

Save Money with Standard Steel Tractor Flushers

Below: This Streamlined Standard Steel Flusher is one of the Finest Truck-Mounted available.

PRESSURE POWER MAKES TF TRACTOR FLUSHER A DEPENDABLE AUXILIARY "FIRE-FIGHTER"

STANDARD STEEL TF TRACTOR FLUSHER—not only a thoroughly dependable street flusher but an auxiliary "fire-fighter." Can be hitched quickly to any tractor for daily or emergency use. No need to invest in trucks with the TF FLUSHER. Can be powered by tractor take-off or independent pump motor.

STREAMLINED FLUSHER—gives 50 pounds pressure on each nozzle. It's modern to the minute—easy to operate—highly efficient.

Write for Catalog on Complete Flusher Line

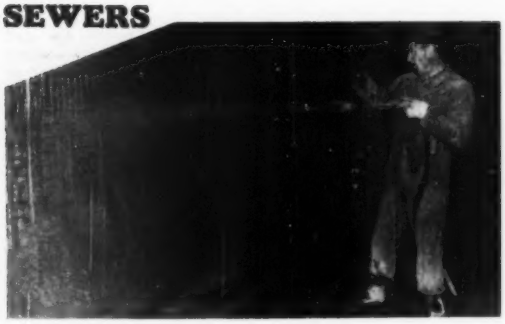
OTHER PRODUCTS

Asphalt Pressure Distributors, Maintenance Distributors, Tar Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Construction Brooms.

Built to the Highest **Standard**

Standard Steel Works NORTH KANSAS CITY, MO.

SEWERS



repaired speedily with

"GUNITE"

Sewers of brick, concrete, etc., or combinations of these materials, are all subject to attack by present-day sewage. Deterioration is rapid when once started.

"GUNITE," because of its high density, is resistant to sewage and becomes the ideal material for linings and for the prevention of further disintegration.

Write for 48-page "GUNITE" booklet.

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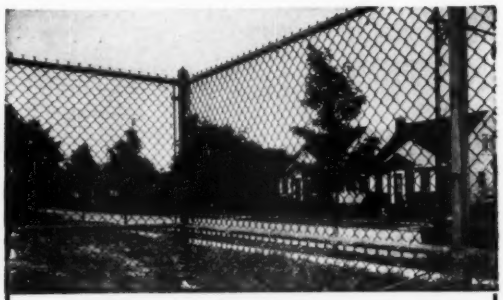
32 N. LA SALLE ST., CHICAGO 2, ILL. • 315 S. COURT ST., FLORENCE, ALA.



For Efficient, Economical Property Protection

REALOCK FENCE

Whether you require protection against trespassing, or the more serious offenses of vandalism, arson and theft, a tamper-proof, weather-resistant Realock* Fence will provide maximum protection at minimum cost.

Realock Fence is made of steel wire, heavily galvanized; with barbed or knuckled selvage. Standard heights up to and including 12 ft. Furnished with or without barbed wire at top.

For free estimate write to our nearest office.

*Trade-name of The Colorado Fuel and Iron Corp. and subsidiaries.

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500 DELAWARE AVENUE · BUFFALO 2, NEW YORK
THE COLORADO FUEL AND IRON CORP.
CONTINENTAL OIL BUILDING · DENVER 2, COLORADO
THE CALIFORNIA WIRE CLOTH CORP.
1080—10TH AVENUE · OAKLAND 6, CALIFORNIA
BRANCHES & DISTRIBUTORS IN KEY CITIES EVERYWHERE

Eliminate the danger and costly damage to supplies and machinery . . .

STOP LEAKS AND WATER SEEPAGE WITH STONHARD STONTITE . . . .

Any maintenance man can effectively stop leaks—from hair-crack water seepage to actual breaks (even against direct hydrostatic pressure) with STONHARD STONTITE. Used repeatedly and successfully by Municipalities, Public Utilities, Industries, and Railroads.

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Building Maintenance Materials Since 1922
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TABLETS OF ENDURING BEAUTY

MARK buildings . . . record deeds and heroes . . . let NEWMAN PLAQUES of bronze or aluminum emblazon names in immortal beauty. NEWMAN has been famous internationally since 1882 for tablet perfection.

WRITE TODAY For Tablet Catalog. Absolutely no obligation.

OUR 67th YEAR

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Mak-A-Sign letter-changing stencils are easy to use, fast, efficient, inexpensive to operate. Makes legible street name on curb, sidewalk, wood or concrete posts, or signboards. *Write for Descriptive Folder and Prices.*

Exclusive territories open for SALESMEN or Distributors now doing business with municipalities. Send full details.

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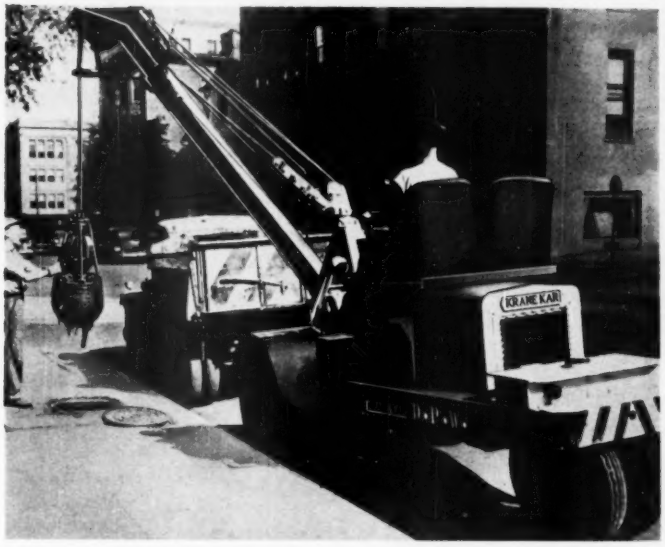
Clean Catch Basins From Street Level



The Krane Kar Model A2 tractor-type crane catch-basin cleaning machine is a self-contained unit with winch hoist, boom, bucket equipment and accessories designed to eliminate hand-shovel labor: the operators work on the street level.

With a mobile swing-boom crane, the unit has a deep-lip orange-peel bucket which may be removed to enable the crane to handle manhole covers, storm covers, gratings, frames, pipe, or curbing.

The crane is front-wheel drive and rear-wheel steer. The engine develops a minimum of 40 brake hp; it is 4-cylinder, gasoline, with an electric starter, generator, battery, coil ignition, air cleaner, oil filter, thermostat; there are 4 speeds forward and one reverse for traveling.

Equipped with a power-reversing worm-geared winch for raising and lowering the boom by power with full load and single-lever control, and automatic braking and holding when the lever is in neutral, the machine's boom swings 180° with limit stops for boom swing positions and upper boom topping position. The boom is telescopic and adjustable in length from 12 to 18 feet.

The Krane Kar is manufactured by the Silent Hoist & Crane Co., 846 63rd St., Brooklyn 20, N. Y .

Motorola Expands

Motorola, Inc., 4545 West Augusta Blvd., Chicago 51, Ill., has opened a second division in the New York-New England area to meet the increasing demands in that section of the country for the company's communications and remote-supervisory-control equipment.

P. R. Kendall, with five assistant engineers, will be regional manager for Maine, Massachusetts, New Hampshire, Vermont, and New York State aside from metropolitan New York City. Lowell E. White and his four assistants will handle Rhode Island, Connecticut, New Jersey, and York City.

BRAXMAR BADGES

Standard Badges since 1879

Write for circular illustrating badges for Police, Fire and other City, County and State Officials

John O. Veit, Pres.

C. G. Braxmar Co., Inc.

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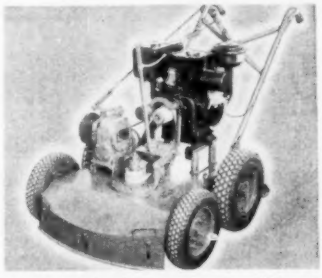
31-INCH "GRASS KING" with 6 h.p. Briggs & Stratton engine. Smoothly cuts up to six acres a day.



24-INCH MODEL "S. P." has four h. p. Briggs & Stratton engine. Smaller models also available.

MOW
EVERYTHING
IN ONE OPERATION WITH A
WHIRLWIND
TRADE MARK Reg. U. S. Pat. Off.

YOU CAN CUT fine lawns . . . tall grass . . . tough growth and weeds in *one operation* with a Whirlwind, America's leading rotary-scythe power mower. Built of extra heavy plate steel and electrically welded. Equipped with 16 precision ball or roller bearing units for smooth, trouble-free operation. Fully enclosed top and sides.

Sharpens In a Jiffy and stays right on the job. You simply loosen nut, remove blade, and sharpen with a hand file. Replaceable cutting tips.

Clean-cutting rotary-scythe spins through grass and heavy growth. Patented "Suction Lift" suspends clippings while blade chops them into mulch.

17 Years of Proved Performance on toughest mowing jobs. Write: Whirlwind, Inc., Dept. A-69. Milwaukee 12, Wisc. Subsidiary of Toro Manufacturing Corp.

it DIGS...it LOADS at tremendous savings

the DEMPSTER DIGGSTER
TRADE MARK REG

Whether you need it for excavation work or loading from stockpiles or both, you need the new low production cost of the Dempster-Diggster. Here is the only small shovel that works on a hydraulic, simultaneous or independent crowd and hoist action and completely eliminates tractive effort in loading with wheels. Its variable crowd action at any dipper position means the Dempster-Diggster can dig lower . . . 15 inches below grade. Exclusive hoisting action means it can dig higher . . . digs out a 15 ft. bank. It's the only small shovel featuring such speed and mobility . . . travels at truck speeds on the road . . . gets in tight places on big jobs, freeing large shovels for heavier work. Ideal for the small and medium size excavation jobs yet powerful and fast enough for big jobs.

Stockpiling or loading work is easy for the DEMPSTER-DIGGSTER. Its speed . . . its 15 ft. turning radius . . . its extraordinary dumping reach help the Dempster-Diggster complete the average loading job in an amazingly short time. Dempster-Diggster buckets are easily interchangeable and are availab'e in three sizes. 1 cu. yd. (heaped) with hardened steel teeth for digging . . . 1½ and 2 cu. yd. for loading and stockpiling work. Power is supplied by a heavy duty gasoline or diesel engine. Hoisting, crowding, steering and braking are all 100% hydraulic. For complete information, write today for Folder Number 8154.

Large photo above shows Dempster-Diggster loading crushed stone. Note how independent crowd and hoist action permits bucket to follow the slope of the material. At right, top: Digging out high bank. Right, center: Closeup of 1 cu. yd. (heaped) digging bucket. Right, bottom: Dumping crushed stone into truck.

DEMPSTER BROTHERS INC.

869 Dempster Bldg., Knoxville 17, Tenn.

Kennedy Valve Appoints Agency Man

J. Lawrence Kennedy has been appointed assistant to the president of The Kennedy Valve Mfg. Co., 1030 E. Water St., Elmira, N. Y.

J. L. Kennedy

In his new position Mr. Kennedy will direct the company's advertising and sales-promotion activities. His 10-year background in the industrial advertising field includes the vice-presidency of Charles L. Rumrill & Co., Inc., one of the larger Rochester, N. Y., industrial-advertising firms.

Chain Belt Appoints Clayton

The Chain Belt Co., Milwaukee, Wis., has appointed William A. Clayton Eastern District Sales Manager for the Construction Machinery Division of the firm.

Straight or Broken Lines With Traffic-Line Marker

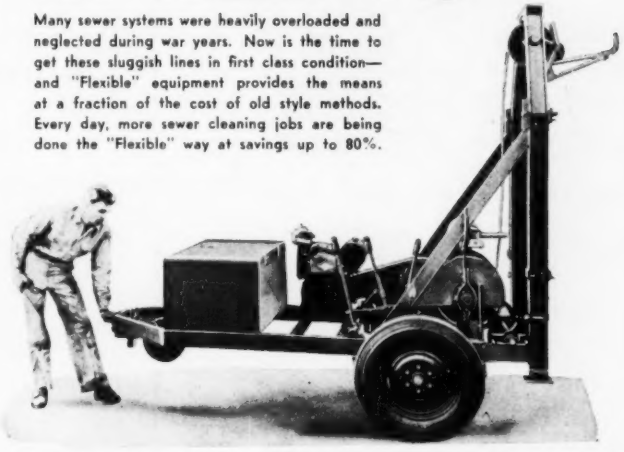
The Streme-Liner manufactured by Samuel and Hirschberg, 204 Valentine St., Hackettstown, N. J., is efficient for several reasons: it makes either solid or broken lines, operates close to the curbing and other obstructions, and paints lines within 6 inches of a head-on obstruction or dead-end.

With clearance for the width of the machine at 28 inches, it may be used in narrow lanes or alleys. The design of the paint shield permits operation over any type of surface and regardless of smooth or rough surface; the line is unbroken by surface irregularities such as cracks. Three adjustments in the Streme-Liner permit fractional graduation in the width of the line from 3 to 8 inches. No sweeping is required to remove loose dust, dirt, or light metal chips because the excess air-pressure from the Streme-Liner spray nozzle clears foreign matter from the path

Where curved lines are desired, the swivel caster on the rear guides the machine on curves having as small as a 4-foot radius. Equipped with a 2½-gallon pressure-feed tank, the Streme-Liner carries enough paint to make about 2,500 to 3,000 lineal feet of 4-inch lines. The paint-shield control-handle lifts the entire marking mechanism from the floor when shifting the machine from one position to another, and the locking device holds it wherever desired. A handle control, which actuates the spray-gun trigger, cuts off the flow of paint exactly where desired to produce clean-cut intersecting lines and cut-offs, without the necessity of hand touch-up.

"FLEXIBLE"
POWER BUCKET MACHINES
Clean Sewers
The "Flexible" Way

Many sewer systems were heavily overloaded and neglected during war years. Now is the time to get these sluggish lines in first class condition—and "Flexible" equipment provides the means at a fraction of the cost of old style methods. Every day, more sewer cleaning jobs are being done the "Flexible" way at savings up to 80%.



FLEXIBLE POWER BUCKET MACHINE

POWER — DEPENDABLE OPERATION — SPEED — SAFETY — ECONOMY — LONG WORK LIFE

FLEXIBLE SEWER-ROD EQUIPMENT CO.

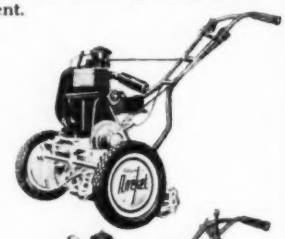
9059 Venice Blvd., Los Angeles 34, California

141 W. Jackson Blvd. Chicago, Ill.
401 Broadway New York 13
147 Hillside Ter. Irvington, N. J
P. O. Box 165 Atlanta
2011 Central Ave. Memphis, Tenn.
801 E. Excelsoir Blvd. Hopkins, Minn.
29 Cerdan Ave. Roslindale 31, Mass.
P. O. Box 447 Lancaster, Texas
41 Greenway St. Hamden, Conn.
3786 Durango Ave. Los Angeles 34, Calif.
909 N. Homewood Ave Pittsburgh 8, Pa.
4455 S.E. 24th Ave. Portland 2, Ore.

POWER LAWN MOWERS by Eclipse

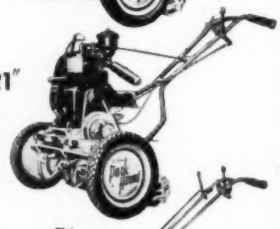
Only Eclipse offers all of the features looked for in power lawn mowers. These are the outstanding and exclusive features that assure trouble-free, long lasting and economical mowing perfection.

A complete line of power mowers provides exactly the right model to satisfy every grass cutting requirement.



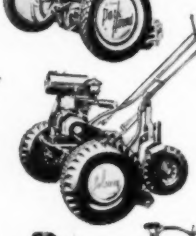
ROCKET 20″

This popular favorite is unexcelled in performance and economy. Excellent for maintaining beautiful lawns of schools and public buildings.



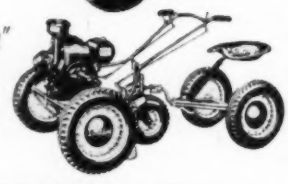
PARKHOUND 21″

Perfect for cemetery use, this durable model offers unmatched mowing of from two to four acres per day at minimum cost.



ROLLOWAY 25″

Preferred for larger areas such as parks, the full swivel caster-wheel permits short turns in close quarters. Plenty of power for steep slopes and terraces.



SPEEDWAY 32″

Large lawn areas are smoothly mowed at the rate of a 32″ swath 100 yards long every 30 seconds. Easy handling and operator comfort are provided by the sulky.

WITH THE PREFERRED POWER OF

No mixing of gas and oil—less smoke—less noise.

4 CYCLE BRIGGS & STRATTON GASOLINE ENGINES

Nation-wide service.

THE ECLIPSE LAWN MOWER CO.
1806 Railroad Street, Prophetstown, Illinois

Safety Manhole Cover

SAFE— fits tightly at all times; cannot be dislodged by traffic.

SIMPLE— can only be removed by hand, yet no mechanical gadgets hold it in place.

SILENT— *absolutely* silent, at all times, under all conditions, *because of the chisel-like point of contact between cover and frame.*

Diamond Castings Co.
Johnsonburg, Pa.

HAND STORAGE BATTERIES

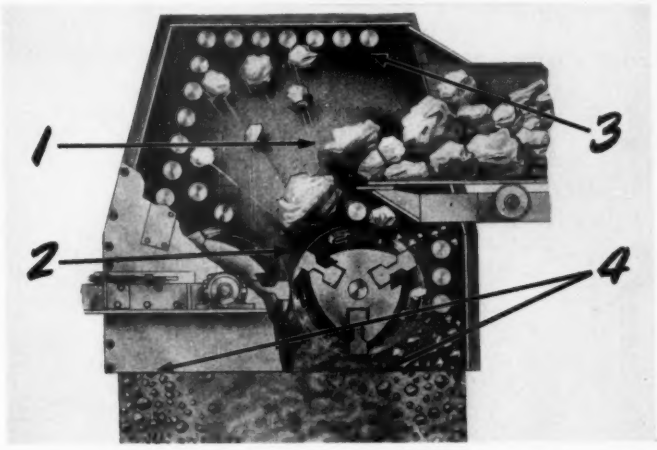
EXTRA HEAVY-DUTY*

For Police Radio Cars, Sanitation Trucks, Snow Plows, Sweepers, Emergency Trucks, Ambulance and Fire Apparatus.

*Heavy, ultra low antimony plate frames . . . hand-pasted, tank-formed . . . heavy glass mats . . . acid and heat resisting microporous rubber separators . . . splash decks . . . double weight cell covers . . . highest grade hard rubber containers.

Hand Laboratory, Nyack, N. Y.
FOUNDED 1930

Can You Use a Crusher in Street Repair?



1. Material to be reduced gets its first impact while in mid-air after entering the breaker. Material can be fed into the breaker by the gravity chute, reciprocating plate feeder, or apron feeder. 2. Double impellers rotate in opposite directions; stone is driven against breaker bars for further reduction. Stone broken by first impacts hits breaker bars and other stone for still more reduction. 3. Five-inch diameter breaker bars are rounded so that stone particles cannot be pinned to the bars to pile up and cause jams. 4. Finished product flows freely out of each end of the large discharge openings.

You can, if you have a supply of oversized gravel, old concrete or bricks. Many municipalities have found these excellent in street repair work after the material has been broken down to a usable size.

The double-impeller breaker made by the New Holland Mfg. Co., Mountville, Pa., does primary and secondary crushing in one operation producing any desired size aggregate from ag lime to road ballast; high fines produced are 60% passing 8 mesh in one breaker run, and low fines to 12% are achieved by making easy breaker-bar adjustments and lessening the impeller speed.

From 75 to 200 tons-per-hour on 75 to 150 hp is the average production rate. A uniform aggregate is achieved by applying impact in suspension; no grinding or crushing action.

Portable, semi-portable, and stationary units are available.

Porter Supply To Distribute Hydrocrane in West Virginia

The Bucyrus-Erie Co., South Milwaukee, Wis., has appointed the Porter Supply Co., Inc., Huntington, W. Va., its distributor for the Hydrocrane, the fast-moving, all-hydraulic truck crane. Porter will continue to distribute the ⅜- to 2½-yard line of Bucyrus-Erie shovels, cranes, and draglines.

Stockland Promoted by FWD

M. O. Stockland, Jr., advertising and sales-promotion manager for The Four Wheel Drive Auto Co., Clintonville, Wis., will become director of sales on July 1. He succeeds Robert L. Koehler, who has resigned to join in a partnership with Oscar E. Betow and John E. Battes in the purchase of FWD's Los Angeles branch.

Solve your leaf or clean-up problem with a

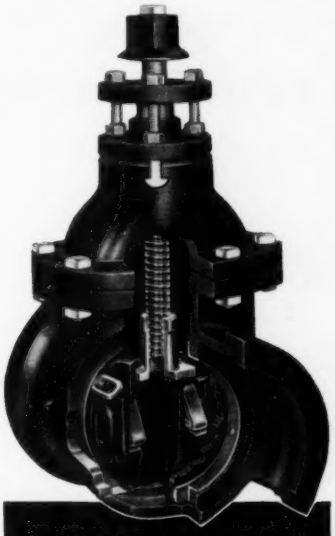
VACUUM Leaf Loader

Mechanized Speedy Sanitary Low Cost

Write for leaflet

LEAF LOADER DIVISION
American Structural Steel & Tank Co.
21050 W. 8 Mile Road
Detroit 19, Michigan

IOWA valves



Simple . . . rugged construction
MEET ENGINEERS RIGID 3 POINT SPECIFICATIONS

1 Solid bronze Wedges are placed loosely in two iron hooks which permit the wedging surfaces of the wedges to be at different angles with the wedges cast on the valve discs. *Solid bronze stem nut* is loose and independent of the gates and wedges, thus preventing binding or springing of the spindle or freezing of the gates.

2 All Working Parts are bronze or *bronze mounted* to safeguard against corrosion as well as to permit free and positive operation both in wedging the gates into contact with the seats and in releasing them.

3 Iowa Valves exceed A.W.W.A specifications and meet engineers choice for a quality product.

IOWA VALVE COMPANY
201-299 N. Talman Avenue • Chicago 80, Illinois
A subsidiary of James B. Clow & Sons

STAR PERFORMERS

★ ★ ★

The country's largest motorized circus employs a fleet of 40 GMCs to haul all its equipment . . . and these star performers deliver their valuable cargoes to daily destinations on exacting, pre-set schedules.

GMC trucks are preferred for tough, rugged going . . . they are given top billing by thousands of truck operators whenever the job calls for high level dependability and performance.

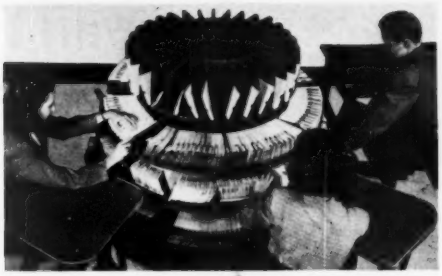
GMCs have won this acclaim because they are products of the world's largest commercial vehicle manufacturer . . . because they are built with truck engines and chassis . . . because they provide a full measure of everything truck owners and drivers want.

This goes for public utilities transport, as it does for all other hauling. For here, as elsewhere . . . in engines, models and chassis types designed and engineered to meet the needs of every job . . . GMC performance is star performance—every time.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

GMC
TRUCKS
The Key to Greater Truck Value
GASOLINE · DIESEL

New Card File For Better Accessibility



Space and speed of use are advantages of a record-containing system offered by The Wassell Organization, Westport, Conn. Rota-File is adapted for card ledgers of any normal size, and will meet the needs of the smaller municipality with 5,000 items to record as well as those of cities with 200,000. It is a rotating file on a horizontal plane, built to house the normal numerical and/or alphabetical arrangements. One or more operators seated around the file can bring to hand any card in the rotary. There are no trays to pull and return.

W. D. Kyle, Jr., Succeeds Sr.

W. D. Kyle, Sr. W. D. Kyle, Jr.

W. D. Kyle, Sr., founder of the Line Material Co., Milwaukee 1, Wis., and its active head for 39 years, has retired as president; he will continue as chairman of the board of directors. His son, W. D. Kyle, Jr., executive vice-president and assistant to the president for the past two years, was elected to succeed to the presidency.

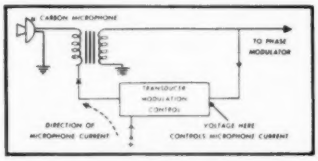
Compact Car Communication

The RCA Carfone, manufactured by the Radio Corp. of America, Camden 2, N. J., is designed for every mobile application in public utility police, fire, or bus vehicles.

"31 Circuit" selectivity, exclusive with the Carfone, is a practical answer to the demand for an instrument capable of adjacent channel operation. In the transmitter portion, the transducer modulation control prevents over-modulation and its accompanying undesirable effects resulting from shouting into the microphone, while correcting for undermodulation as well.

Compact in size, it may be installed in any one of a number of positions on the vehicle—on the bottom, side, or on end. It fits easily in the trunk on the side, in back, or behind the spare tire.

The Carfone has a single cable from the equipment to the battery and control unit. There are no grounds carried through the car frame, and it operates in severe heat or cold.



Whether the speaker shouts close to the microphone or holds it at a distance, 100% modulation is achieved. The transducer modulation control acts as a valve on the microphone current, the microphone output being the source of control.

WHY PAY SIX TIMES MORE FOR YOUR BREAKING?

The MIGHTY MIDGET

A utility machine with merit, power, speed and economy. Increases output of your compressor. Cuts concrete and tamps backfill at a rapid pace. Cuts cost to a minimum. Entirely air powered. Cuts concrete the easy way!

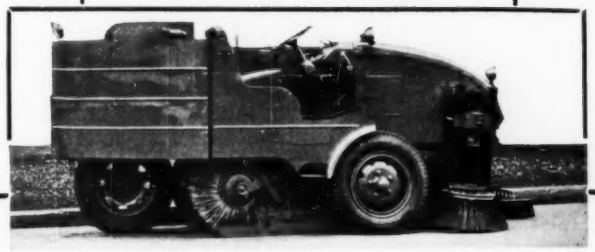
Write for information to Department "D"

R.P.B. CORPORATION
2751 EAST 11th STREET - LOS ANGELES, CALIFORNIA

South Bend

GUTTER-SNIPE

Model "E" Pick-Up Street Sweeper



Sweeps 6 feet wide
Holds 1¼ yards dirt
Turns in 19-ft. circle
Can sweep up a 10% grade
Has three sweeping speeds

We also manufacture SOUTH BEND "Big 6" Street Flushers, Bituminous Distributors, Bituminous Maintenance Units, and Gravity and Pressure Sprinklers.

Municipal Supply Company, South Bend 23, Indiana, U. S. A.

Export Department — 44 Whitehall Street, New York 4, N. Y.

Are Your Signs GUARANTEED *Against* CORROSION?

Every COLUMBIA PLASTIC HIGHWAY SIGN carries a lifetime GUARANTEE against RUST OR CORROSION! No other highway markers or signs can make that claim!

The unretouched photograph of a metal sign on a highway clearly shows deterioration caused by varying weather conditions. Rust and corrosion have already attacked the spots exposed by the chipping or peeling of the paint. Maintenance costs are high on the upkeep of metal signs.

CUT YOUR MAINTENANCE COSTS . . . BUY COLUMBIA PLASTIC HIGHWAY SIGNS! They are impervious to salt air and fresh water corrosion! Damage to the face or any part of a COLUMBIA SIGN cannot cause deterioration! Tested and proven . . . COLUMBIA SIGNS will withstand continuous outdoor exposure under the most adverse and destructive weather conditions for YEARS without maintenance!

COLUMBIA NON-CORROSIVE, practically indestructible HIGHWAY MARKERS and SIGNS are available in standardized sizes, colors, shapes, lettering styles, legends and mountings. Color-molded integrally throughout the signs assure widest all-angle effective brilliance year in, year out!

COLUMBIA SIGNS guarantee lower maintenance costs for you!

GUARANTEE

The plastic base material in COLUMBIA SIGNS is GUARANTEED against rust or corrosion for the life of the installation.

Write for
COLUMBIA BOOKLET
It will give you a wealth of up-to-date Traffic Marker information.

COLUMBIA SIGN & SIGNAL CORP.
10030 LORAIN AVE. CLEVELAND, OHIO

Portable **HUSSEY SAFE SEATING** Permanent

Need Safe Seating QUICK?

Then investigate Hussey (patented) Portable Bleachers. Six, ten and fifteen tier stands are carried in stock for quick delivery. Because of their exclusive, patented construction, Hussey steel portable bleachers are safe, quick and easy to erect and take down and take up less storage space. Additional sections can be added as needed and they are low in cost.

Hussey also specializes in portable and permanent grandstands to meet all of your seating requirements.

The knowledge and experience of our trained seating engineers is available to you without cost or obligation.

Write today for FREE literature and name of nearest Hussey representative.

HUSSEY MFG. CO., INC.
487 RAILROAD ST. • N. BERWICK, MAINE

Also ask for catalog of "Laughing Loon" diving boards, swimming floats, etc.

TYPICAL HUSSEY INSTALLATIONS

PORTABLE BLEACHERS
Norwood Arena - Norwood, Mass. A Hussey Portable Bleacher installation with a seating capacity of 13,080.

PORTABLE GRANDSTAND
Another Hussey installation at Danvers, Mass. Affords permanent stand advantages, yet may be moved quickly, easily and economically.

Clean, Clear Water In Swimming Pools

After a swimming pool has been constructed—that is when the problems really arise: recirculation, filtration, chlorination, softening, pH control, suction cleaning, heating, testing.

The advantages of recirculation and purification over the "fill and draw" method are that clean, sterile water is furnished and water and fuel are conserved. The principal units comprising a recirculation and purification installation from the Permutit Co., Dept. A-5, 330 West 42nd St., New York 18, N. Y., are a hair catcher, recirculation pump, alum (coagulant) and alkali feeds, filters, chlorinator with or without ammoniator, a heater if desired, a water-testing kit, and a suction cleaner.

The hair catcher, a special screening device on the suction side of the recirculation pump, eliminates hair, lint, and other debris. The recirculation pump may be motor driven or activated by a gas engine, diesel engine, or turbine. It should have a capacity sufficient to recirculate the water in the pool in the proper time interval when operating against a total head of about 50 feet. Where three or more filter units are employed, the recirculation pump will usually have adequate capacity to deliver the required backwash water for each filter unit, eliminating the necessity for a special backwash pump..

After the alum coagulant and the necessary alkali have been added and time for coagulation allowed, the floc with its enmeshed turbidity is strained out in the filters. A fully automatic Permutit multiport valve controls filtration.

To collect sediment that may settle to the bottom of the pool, a suction cleaner, similar in principle to a household vacuum cleaner, is used.

Where necessary, a Zeolite water softener may be utilized to prevent objectionable lime deposits from forming on the walls of tiled pools. This is usually required when natural waters are high in bicarbonate hardness.

Dresser Plant Expansion Enables Price Cuts

Price reductions on Style 60 bell-joint clamps and Style 90 Super-Service fittings were announced by the Dresser Mfg. Div., Bradford, Pa. According to a statement from the company, the reduction in price is not the result of reductions in the cost of basic raw materials, but was made possible through substantial investment by the company in new facilities and the development of several original and exclusive processes.

Automatic Figuring Machine

A new portable posting and figuring machine, designed to give smaller municipalities mechanical bookkeeping advantages, is offered by the Underwood Corp., 1 Park Ave., New York 16, N. Y.

This simple 10-key machine can be used for problems of addition, subtraction, multiplication, and division. A complete record and proof of all work is automatically printed.

First-class accounting with a moderately-priced machine.

New Eastern Facilities For Peerless Pump Division On Huge Site At Indianapolis
INDIANAPOLIS, IND.—Peerless Pump Division's new Indianapolis works is the former Fall Creek Ordnance Works and was acquired both for its adaptability to Peerless' long studied and applied production line for manufacture of pumps and for its strategic geographical location for quick customer service. The existing plant, based on 50 ft. x 20 ft. steel column spacing was well adapted to the setting up for high manufacture volume of pump units. Approximately $61,000 square feet of floor space (6 acres under roof) is contained in the main manufacturing building. Auxiliary building for production control, shower and locker facilities for 1200 employees, main offices, dispensary, etc., adds many thousands of square footage. Included in the main building are 24 cranes of 2 and 5 tons capacity capable of operating the entire range of each of the six 50 foot bays. Spur tracks enter both north and south sides of main factory building. A complete and rounded complement of the most modern machinery has been assembled to build up one of the most accurate and finest industrial machine shops.

Newest pump factory in the U. S. geared to high speed production of horizontal and vertical pumps.

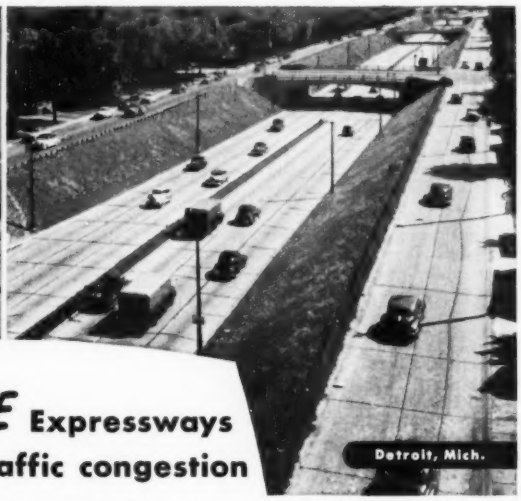
PEERLESS PUMP PLANT AT INDIANAPOLIS, IND.

19 ACRES OF MODERN PLANT FACILITIES DEVOTED EXCLUSIVELY TO MAKING PUMPS

Here is one of America's most modern pump factories. Peerless Pump's new plant at Indianapolis is devoted entirely to making pumps and handling pump service. All types of pumps in the Peerless line, horizontal centrifugal, deep well and close-coupled turbines, Underwriters' approved fire pumps and domestic water systems are made and serviced in this plant. No expense has been spared in tooling Peerless-Indianapolis to insure accurate pump production; testing facilities at Indianapolis are being incorporated into one of the largest pump laboratories in the country. Add these factors to sound basic Peerless pump designs, to the high caliber of Peerless personnel and to Peerless' extensive manufacturing facilities at Los Angeles, California, and they combine to make available as comprehensive pump service as is offered to pump owners and buyers anywhere. Peerless-Indianapolis is open for your inspection. You are cordially invited to see for yourself how Peerless-Indianapolis will exactly fit your needs for pumps and pump service.

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
Los Angeles 31, California Indianapolis, Indiana
District Offices: New York 5, 37 Wall Street; Chicago 40, 4554 North Broadway; *Atlanta Office:* Rutland Building, Decatur, Georgia; Omaha, Nebr., 4330 Leavenworth Street; Dallas 1, Texas; Fresno, Calif.; Los Angeles 31, California

Peerless
VERTICAL AND HORIZONTAL
Pumps



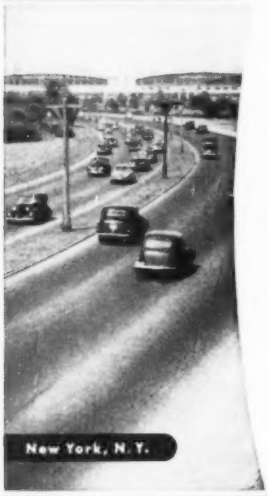
CONCRETE Expressways solve urban traffic congestion

Multiple-lane concrete expressways like those illustrated here are solving traffic congestion and safety problems in cities from coast to coast.

Modern expressways end traffic congestion with safety by dividing opposing traffic lanes, separating cross traffic and limiting access.

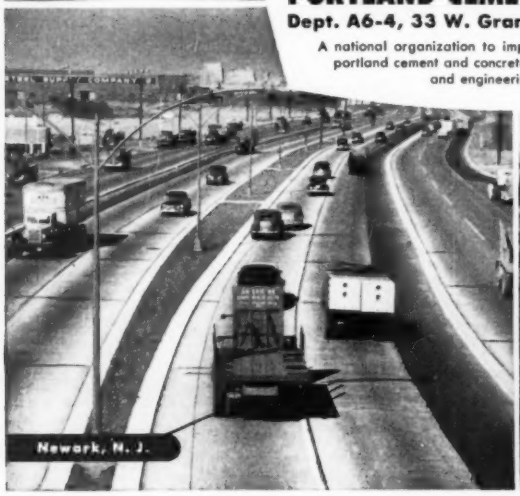
Portland cement concrete pavement has the stamina and durability for the heavy weight and volume of traffic that expressways carry. Concrete pavement is moderate in first cost, has long life and low maintenance expense. This ***low-annual-cost*** service pleases motorists and taxpayers alike.

For more examples showing how modern concrete expressways are solving urban traffic problems write for free booklet, *"Concrete Expressways,"* which is distributed only in the U. S. and Canada.



PORTLAND CEMENT ASSOCIATION
Dept. A6-4, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work



One Kit Makes Many Signs

Mak-A-Sign Co., manufacturers of sign-making devices, P. O. Box 2290, Birmingham, Ala., in addition to horizontal models, makes street-marking equipment to make perpendicular signs on concrete and wooden posts — of particular interest to towns and cities installing or planning to install concrete posts as street-name markers.

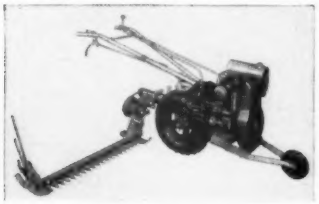
These posts may be made at a cost of $1.00 or less each, and the advantage of using concrete posts as street-name markers lies in the fact that they are permanent, cheaply made, and are attractive so that they may be placed in the best residential sections. The contrast of the black lettering against a background of white traffic paint makes the lettering highly legible by day or night. Black spraying lacquer used in a paint spray-gun or a special quick drying black stencil ink is used with equal success and both are waterproof and sunproof and will remain on the post for years.

Link-Belt Appoints Riley

John D. Riley has been appointed district manager at Newark, N. J., by the Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill., succeeding the late George E. Ramsden. The Newark offices were recently expanded through a move to 212 Essex Bldg., 31 Clinton St.

Mower Operates In Any Position

The latest development in a mower that operates in any position regardless of terrain is the Ariens, which attaches to a tiller also manufactured by the Ariens Co., Brillion, Wis.



Cutting anything from fine lawn to large, tough grass and weeds at heights of 1, 1¾, and 2½ inches, the mower has a cutting bar 42 inches wide. By reversing the mower-hinge assembly to the left, the cutting width is reduced to 28 inches from the right wheel for fence row and other narrow mowing. The cutting bar is made up of 2-inch sections; there are no plates to be changed.

ZERO-LASTIC
Sealing Compound

Zero-Lastic Oil Resisting Compound.

Zero-Lastic Oil Resisting Joint Material for Airports.

Zero-Lastic Vertical Joint Filler.

Zero-Lastic Sloping Joint Filler.

Zero-Lastic Compound meeting Federal Specifications SS-F-336a; put up in 50 lb., 25 lb. and 10 lb. packages.

Zero-Lastic Hair-Line Crack Filler.

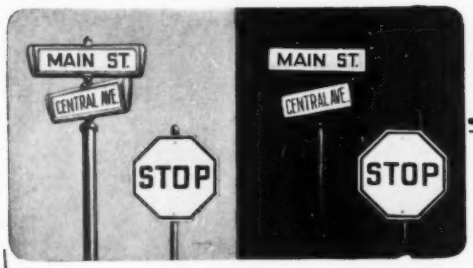
Write for prices on these materials for Municipal and Public Work.

Rubberized Oil Plastics Not Inc.
6049 West 65th St.
Chicago 38, Illinois

3 way dependability

1. **IN CASE OF FIRE**—dependable, smooth operation . . . clear, large waterways . . . insure plenty of water. Hydrants open fast and easily *with* the pressure . . . and close without water hammer.
2. **IN CASE OF ACCIDENT**—stem held in place below main valve means no water loss due to a bent stem. One man can easily remove all operating mechanism for inspection or repairs.
3. **IN CASE OF LOW TEMPERATURES**—Eddy's positive drip action automatically drains hydrant barrel of all water when hydrant is closed . . . safeguards hydrant against freeze-ups.

EDDY
VALVE COMPANY
WATERFORD NEW YORK
A subsidiary of James B. Clow & Sons



By DAY or NIGHT
Our Signs are BRIGHT

Their Name?—
That's Right!—
It's

TASSCO!

Prompt delivery on street and traffic signs

All Standard types

Baked enamel or reflectorized

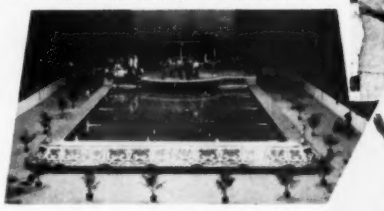
Write today for the TASSCO catalog

TRAFFIC AND STREET SIGN CO.
NEWARK 5, NEW JERSEY

SEE BUSTER CRABBE'S AQUA-PARADE OF 1949

World's largest portable pools of aluminum and nylon with water kept pure exclusively by

BOWSER *Diatomite* FILTRATION



100,000-Gal. Pool • 35,000-Gal. Diving Tank

Water is kept crystal clear as 60 "aquamaids and divers perform. Bowser filters are most dependable, even under trying "portable pool" conditions. There is no "tougher" proving ground for a filter.

BOWSER FILTERED WATER WILL MAKE YOUR POOL THE PRIDE OF YOUR COMMUNITY

Diatomite Filters cost less to install and operate. If you plan a new pool or are modernizing, get the facts on Bowser filters. Write for booklet, "THE MODERN WAY." Bowser invites your requests for information or bids.

BOWSER, INC.
WATER FILTRATION DIV.—1396 Creighton Ave. Fort Wayne 2, Indiana

DOES A TWO-FOLD JOB

When the lid of this Hose Box or Street Washer is locked you can be certain of two things:

—the water is turned off
—vandals can't get at the mechanism

In other words, locking the lid safe-guards your municipality against losses from wasted water and destructiveness.

In this field, too, "It Pays to Buy MURDOCK."

The Murdock Mfg. & Sup. Co.
426 Plum St., Cincinnati 2, O.

MURDOCK

Le Roi Personnel Changes

In the Le Roi Co., 1706 South 68th St., Milwaukee 14, Wis., Thomas V. Shea has been named general sales manager, J. E. Heuser, industrial engine sales manager, E. F. H. Dutton, eastern district manager, and Clyde R. Schuler, sales engineer for industrial engines.

Thomas V. Shea

Three years of experience as the eastern district manager for Le Roi and several years with other construction equipment manufacturers qualify Mr. Shea to succeed J. M. Dolan, now vice-president and general sales manager of the Hydraulic Press & Equipment Mfg. Co., Mt. Gilead, Ohio.

Mr. Heuser, who worked for many years in original equipment manufacturer and distributor sales, will be in charge of all industrial engine sales.

Formerly representing Le Roi in the foreign sales department, Mr. Dutton replaces Mr. Shea as eastern district manager. Before Le Roi, he managed the Canadian plant of the Holman Company, Ltd.

Mr. Schuler's background includes twenty years with the Hercules Motor Co., Canton, Ohio.

Taussig Field Representative For N. P. Nelson

Edmund G. Taussig has been appointed field representative for the promotion of Nelson snow- and bucket-loaders. Mr. Taussig, who has been with the N. P. Nelson Iron Works, Inc., Clifton, N. J., since 1941 and has served for three years in plant operations, will cover the eastern half of the United States.

E. G. Taussig

Carry Your Water Supply To Fight Fires

Welcome news to firefighters in suburban communities and farm districts, faced with limited or no water supply in the face of fire hazard, is the new Smithco Firefighter recently marketed by L. B. Smith, Inc., Camp Hill and Philadelphia, Pa., and Syracuse, N. Y.

The Smithco Firefighter, designed especially for suburban and rural communities with limited water supply, carries a reservoir of 2,000 gallons with it to the fire—enough to extinguish a fire of considerable size without the help of any additional source or supply. Since water is the fire fighter's first requirement, the additional 25% or 50% carrier capacity of Smithco will help save many dollars that otherwise go up in smoke each year.

Its 2,000-gallon capacity is the number one feature of the Smithco, but also incorporated in the F7 or F8 Ford or WC-20T White Tractor are many other modern features which aid in swift and efficient fire defense.

Our Apologies!

On page 223 of our May issue, we erroneously captioned the photographs of the personnel of the Mathieson Chemical Corp., 60 E. 42nd St., New York 17, N. Y. A. T. Bennett's photograph appears on the right, and the portrait on the left is that of Dr. C. F. Prutton.

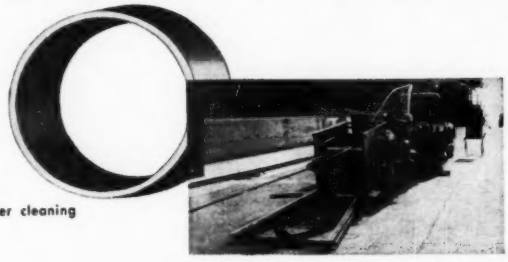
Blaw-Knox Appointments

Arne Olson has been appointed chief process engineer and R. H. Hazlett manager of the oil and gas department of the Chemical Plants Division of the Blaw-Knox Co., Pittsburgh 30, Pa.

Before cleaning

A CLEANING JOB THAT LASTED 30 YEARS

After cleaning



Special Power Winch for pulling cleaning head through pipe.

Just 30 years ago the water mains of the city of Toledo, Ohio were successfully cleaned by National.

The thoroughness with which National performed that initial job, along with the exceptionally fine water treatment system installed by Toledo's Water Works Department has enabled the original cleaning to last 30 years.

It was because of that unusual record that Toledo's progressive water works department *has again selected National* to clean its entire water main system—a program that will take over five years to complete.

Tests made on those lines already cleaned by National indicate higher pressure and increased carrying capacities, resulting in greater fire protection for Toledo's outlying districts.

There's no obligation to have a National engineer estimate the cost of cleaning your lines. Why not write *today!*

30

NATIONAL WATER MAIN CLEANING CO., 50 Church St., N.Y. 7, N.Y.

ATLANTA, 333 Candler Building • ATLANTA, 1221 Mortgage Guarantee Building • BOSTON, 115 Peterboro Street • CHICAGO, Room 1336, 122 So. Michigan Avenue • FLANDREAU, S. D., 315 No. Crescent Street • KANSAS CITY, 422 BMA Building • LITTLE FALLS, N. J., Box 91 • LOS ANGELES, 448 South Hill Street • OMAHA, 3812 Castellar Street • RICHMOND, 210 East Franklin Street • SALT LAKE CITY, 149-151 W. Second So. Street • SAN FRANCISCO, 681 Market Street • SIGNAL MOUNTAIN, TENN., 204 Slayton Street • WACO, P. O. Box 887 • MONTREAL, 2028 Union Ave. • WINNIPEG, 576 Wall Street • HAVANA • MAYAGUEZ, PUERTO RICO • BOGOTA • CARACAS • MEXICO CITY

"KARDEX . . . helps us maintain effective control of tb. cases"

Public health nurses in the Bakersfield office examine the control record that helps prevent tuberculosis. Fingertip pull moves the slides from the Floor Model Kardex cabinets into flat position for posting or detaches them for study and review. Margin signal code sheets attached inside the cabinet covers provide convenient reference for interpretation of data.

say . . . Public Health Officials of Kern County, California

Intelligent concern for combatting this "public enemy" has resulted in a *visible* records control system for tuberculosis cases in Kern County, California. Such control has been made a smooth-running routine—simple, compact and completely accessible with Kardex Floor Model Cabinets. Whether for planning and control of activities in connection with specific cases, or for making country-wide surveys, the Floor Model Units are moved easily to the "point-of-use," and slides are reviewed swiftly and accurately.

This rapid administrative review is provided by signal control on the visible margin of the records; on each case colored signals flash the month of last contact and report, type and status, result of sputum test and class of supervision. When additional information is required, the whole story is instantly available on the individual record card: vital statistics, record of laboratory findings, hospitalizations and treatment, probable source of infection, employability—a comprehensive, detailed record in compact, *usable* form.

"Floor Model convenience and the flexibility of signal control of the visible margins," officials state, "make Kardex the ideal equipment, in our opinion, for a system of tuberculosis case control—help us conserve our human assets."

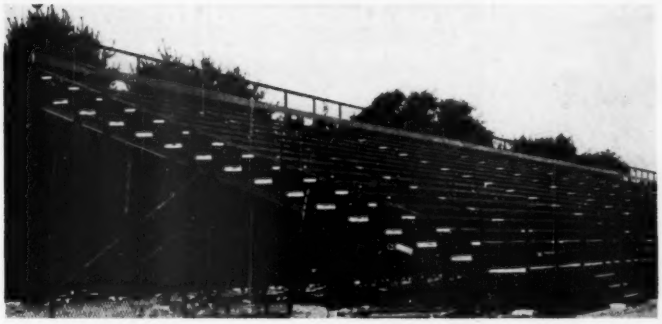
Copyright 1949 by Remington Rand Inc.

Remington Rand

THE FIRST NAME IN RECORD SYSTEMS

• If you have not received your copy of *Systems for Government Administrators*, mail a request today for this timely Remington Rand publication containing detailed description of latest developments in efficient record-keeping procedures in all branches of government. Call the Remington Rand office near you, or write Systems Division, 315 Fourth Avenue, New York 10.

Bleachers, Grandstands



The Hussey Mfg. Co., Inc., 487 Railroad St., N. Berwick, Maine, makes portable bleachers and gym seats, and portable and permanent grandstands. The result is that municipal and school athletic fields can be adapted for various games, concerts, or other performances—increasing or decreasing seating capacity as required.

All supporting members of the Hussey portable bleachers are of steel with steel horse positively locked to foundation sleepers (the horses fold up for storage). The horse grips stringers that are of one solid piece of rust-resisting steel and all attachments are electrically welded — no bolts or rivets to work loose. And from the comfort angle—the seat boards are level, and the foot boards, also level, do not overlap.

No Leaf or Brush Raking With This Unit

When the Ronnco Yardmaster has the Leafmill attached to it, deep-piled leaves, twigs, nuts, etc., are picked up with the brush, ground into small particles at the rate of 1½ million cuts per minute, and dropped back into the grass. No raking, hauling, handling, or burning. And the lawn benefits from this fertilization.

With the sickle bar attached to it, accomplished by loosening and then tightening two nuts, the machine wades with ease through tough weeds over rough terrain. The notched pitman, acting as a positive elevator-divider, enables the ground wheels to track down any cuttings of tangled growth. As a result full cuts can be taken in any tangled growth without clogging the machine. The sickle bar is 36 inches long and comes with nine 2-inch twin guards and streamlined end guards.

As a reel-type mower, the Ronnco

Gathering leaves from a municipal back yard.

Yardmaster cuts 24 to 30 inches wide at 3 mph at a motor speed of 3,550 rpm. The cutting height is adjustable from ¾ to 2 inches.

The Yardmaster is manufactured by Ronnco Products, Inc., 1209 Glenwood Ave., Minneapolis 5, Minn.

Free literature on request

SAVE MONEY! SAME TIME! With the UNIVERSAL CONTROLLED-FLO TRAFFIC LINE PAINT STRIPER with long lasting ALL METAL Paint Spreader.

NO BRUSHES — ENGINE — HOSE — COMPRESSOR — PUMP — JETS

Combination of gravity feed & all-metal, shoe-type spreader eliminates many problems.

Use any zone or striping paint of standard manufacture in this new Universal Controlled-Flo Traffic Line Paint Striper. Indoors or out, on any road surface. ROLLS paint on easily, quickly. Spreader offset to afford clear view of line all times. Finger tip control of flow.

Standard model: All welded steel chassis & 9 gal. tank with funnel bottom to use all the paint. Cast aluminum alloy wheels, all metal spreader. Furnished in widths from 2" to 8" spreaders interchangeable but not adjustable. Weight 60 lbs., 47" long, 24" wide, 38" high. All parts standardized & interchangeable for replacement.

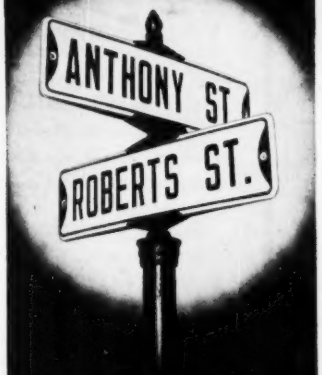
With one spreader $150
Rubber-tired ball bearing wheels $15 extra.

Model B, 5-gallon tank capacity $90
Spreaders: 2" to 4" width $20; 4" to 8" width $25.

UNIVERSAL MARINE & MFG. CORP.
137 Alexander St., Yonkers 2, N. Y.

Beautiful, Legible, Low-Priced

STREET NAME SIGNS



WRITE FOR CATALOG

Cataphote Corporation

TOLEDO, OHIO

Niftiest, Thriftiest Traffic Controller Money can Buy!

YEARS AHEAD IN DESIGN . . . *it's designed for the years ahead!* Think of it . . . You can provide *today* for all future expansion of your traffic control system. One Marbelite "foundation" installation *now* . . . to meet your immediate needs. Then, whenever you please, simply add one or more MARBELITE *jack-connected Dials.*

Specify MARBELITE "MULTI-DIAL CONTROLLERS" . . . with the Marbelite Unit-Dial.

BUY ONE DIAL *Now*

. . . to meet your present needs. Specify Three-Dial Foundation. Add one or two Dials later.

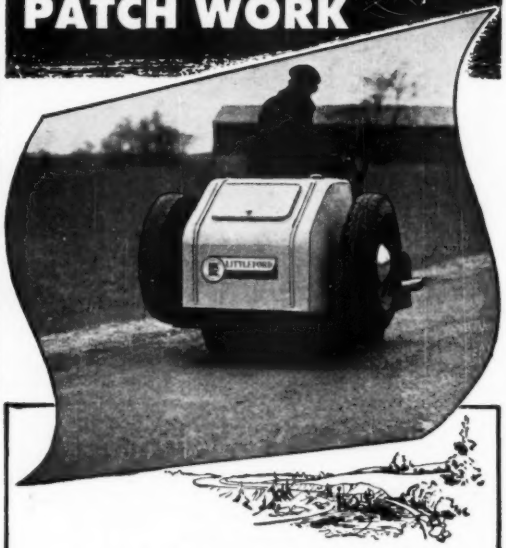
THE MARBELITE COMPANY, INC.
27 WARREN STREET, NEW YORK 7, N. Y.

GENTLEMEN:
Please send me complete details of ***Marbelite*** Multi-Dial controllers providing for future expansion.

Name .....
Address .....
City ..... Zone .....
State .....

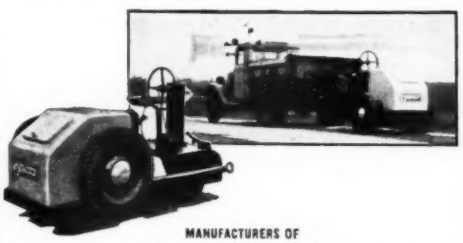
THE MARBELITE COMPANY, INC.

This Littleford Roller was Designed for Highway & Street PATCH WORK



Here's the Roller that has the only Hydraulic Raising and Lowering Device. It's a patented Littleford feature that makes it possible to change the Trail-O-Roller from Trailing to Rolling or Rolling to Trailing position in only 2 minutes' time. This Portable Roller was designed for patch work, yet gives as much compaction as a 5 ton tandem and can be used for rolling Highways, Streets, Runways, Parking Areas, Service Cuts, etc.

The Trail-O-Roller is the only portable roller that can cut the cost of rolling operations, because it's engineered to cut labor; dozens of rolling jobs can be done in a day's time. No Contractor or Highway Department can have a more versatile roller than the Trail-O-Roller. It's the Modern Roller for Modern Road Repair Work. See your nearest Littleford Distributor for further details.



MANUFACTURERS OF

"Tankar" Steam Heaters
"Kwik-Melter" Roofers Kettles
Trail-O-Rollers
"Spray Master" Pressure Distributors
Highway Brooms
Tool Heaters
Trail-O-Distributors
Asphalt Supply Tanks
No. 101 Utility Spray Tanks
84-HD Asphalt Kettles

BLACK TOP ROAD MAINTENANCE EQUIPMENT — SINCE - 1900

LB LITTLEFORD

LITTLEFORD BROS., INC.
500 E. Pearl St., Cincinnati 2, Ohio

Pipe Unloaded To Supply Bridgeport With Water

The Lorain Moto-Crane, manufactured by The Thew Shovel Co., Lorain, Ohio, unloads 7,800-pound pipe sections as one of its duties in helping to complete the new water line from Hemlocks Reservoir that will mean more water for Bridgeport, Conn.

Clarke New Vice-President For Philip Carey Mfg. Co.

L. W. Clarke, formerly general sales manager of the Philip Carey Mfg. Co., Cincinnati, Ohio, was elected vice-president in charge of sales, succeeding E. W. Smith, who resigned.

L. W. Clarke

With Carey since 1935, Mr. Clarke's experience in the fields of sales and engineering includes employment as assistant superintending engineer of the New York and Cuba Mail Steamship Company, and as engineer and sales manager for the Robert A. Keasbey Company.

Find Underground Lines—Expected and Unexpected

The Wilkinson electronic line locator performs two distinct functions—it locates what you are looking for, and helps you avoid what was unexpected.

Sensitive enough to spot a No. 8 wire cable buried 7½ feet or a pipeline at a depth of 30 feet, the locator manufactured by the Wilkinson Products Co., P. O. Box 1774, Wilshire-La Brea Station, Los Angeles 36, Calif., can help to prevent damage to service and other sub-surface metallic structures that might otherwise be unnoticed until after the damage is done—damage that may require expensive repairs and replacements. It is imperative to know exactly where every cross or parallel line lies so that the conflicting underground pipes, conduits, drains, and similar lines can be carefully uncovered by hand. Guesswork or complete reliance on maps is not efficient.

The Wilkinson line locator is light and compact. Each unit is 10 by 13 by 2¼ inches and weighs 5 pounds. It is built for heavy field use and is equipped with miniature tubes and standard flashlight batteries.

SURE! THOSE BUFFALO METERS YOU INSTALLED WHEN THE CITY WAS METERED ARE STILL RUNNING
• Many of the Buffalo-made Water Meters installed by water works up to forty years ago are still giving daily service.
Meters installed in 1949 will give even better service because of the many refinements in today's American or Niagara meters.
AMERICAN BRONZE CASE
NIAGARA GALV. IRON CASE
WATER METERS
BUFFALO METER COMPANY
2902 MAIN STREET, BUFFALO 14, N. Y.

Disorganization Will Get Your Number

A numbering system that may offer America's thousands of municipalities a solution to inventory problems has been tested and adopted by the Public Property Division of Minnesota's Department of Administration.

The Minnesota story starts late in 1945, when the State's Public Property Division discovered that thousands of items were being crossed off on paper simply because they couldn't be found and identified. Numbers marking the different articles were missing. Inventory-time was a worse headache than usual, and money was being lost.

In 1939, the state passed a reorganization act. Under Chapter 431 of the act, the system of taking inventory was to be overhauled. It was.

L. W. Soderblom, Chief Inventory Supervisor in the Division, knew the situation had to be cleared up and a new method instituted to enable field workers to check everything from stoves and work tables in institutions to electric fans in offices and heavy equipment in power houses and farms.

Here the adhesive has been placed on the equipment to be catalogued and the tag is being positioned for attachment.

The division had some 1,700,000 items to keep track of. By careful screening and processing, 1,654 categories, listing different types of equipment, were set up.

Then a major step in state inventory was made—correct numbering.

Up to 1945, Minnesota used a stenciling system. Numbers were put on in silver and black ink with the use of stamp and steel dies.

This method wasn't satisfactory, because numbers wore out after a while. Numbers on equipment that were exposed to the elements wore away much quicker.

Then the division thought of another idea—metal tags, instead of the stenciling system. Numbered tags were made of aluminum, holes were punched in them, and escutcheon pins, rivets, or screws were used to fasten them to the items to be identified.

But that system was time-consuming and expensive, and — still worse — the tags didn't stay in place when exposed to summer heat, rain and severe Minnesota winters.

Faced with that problem, Mr. Soderblom and others in the Division toyed with the idea of using some kind of rubber cement instead of pins, rivets and screws.

He contacted the Minnesota Mining and Mfg. Co., St. Paul, Minn., and asked if some type of adhesive could be developed to keep the tags in place.

An adhesive was prescribed by the 3M company's adhesives and coatings division in Detroit. The result: an adhesive that had "excellent adhesion" to rubber, plastic, fabric, metal, and wood surfaces. The adhesive has a synthetic rubber base, and can stand rain and high and low temperatures.

Field workers applied the adhesive, which was packaged in 5½-ounce tubes to facilitate application to tables with wood surfaces, telephones, and bakelite casings over electric motors. Within a matter of minutes, the tag was bonded solidly to the surface.

Inventory Chief Soderblom says the adhesive holds so tightly, tags are practically impossible to remove when the adhesive sets. As a result of using the adhesive on tags, an essential step in the inventory procedure was made easier.

Soderblom points out the saving has been "considerable," since use of the adhesive is simpler than employing escutcheon pins and screws, and reduces the problem of maintaining supplies.

CLEAN, NEAT

Streets

Require HANDY Disposals

These large, husky Tarco Receptacles (as above, and other designs) are trim looking and ruggedly made. Stainless steel feet. Takes burlap innerliner. Easy emptying. Beautifully finished, many colors; any lettering. Prompt delivery.

TARRANT MFG. CO.

East Ave. Saratoga Springs, N. Y.

A BETTER BUILT MIXER *means*

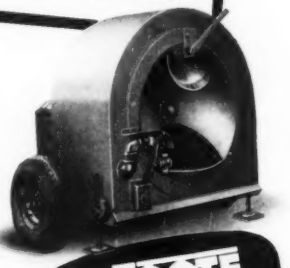
Greater Savings

- 3 cu. ft. in 30 seconds
- High output for low investment
- Handles any mix
- Fully portable

ASPHALTIC Mixes cannot be handled like concrete. Ordinary mixers deliver poor mixes and waste asphalt.

The Foote Kinetic Mixer is a high quality, dependable unit, capable of the accurate delivery of asphaltic mixes and taking the punishment of continuous service. The new and unusual mixing principle assures complete coating with minimum quantities of asphalt and will give you 8 to 10 more batches out of every barrel of asphalt. You cannot get efficiency from ordinary methods. Savings will soon pay for this mixer.

Ask for bulletin K-100.



the FOOTE Kinetic mixer

THE FOOTE CO., INC.
Subsidiary of Blaw-Knox Co.

1958 State St. • Nunda, New York

A BLAW-KNOX PRODUCT

Make As Many Duplications As You Wish, At Any Time

The Ozalid reproduction technique has only one requisite—the use of translucent paper or cards rather than opaque paper as originals. Duplicate copies, positives not negatives, as many as required and at any time, can then be reproduced in 30 seconds or less. And the translucent paper or cards look and feel like opaque materials.

The Ozalid Streamliner accommodates materials up to 42 inches wide, any length. The reproductions come out dry, ready for immediate use, and may be made of any type of matter—drawn, typed, printed, photographed—in different colors and on different materials, such as paper, cloth, foil, or film. Alterations or additions can be made in seconds on translucent Ozalid prints to eliminate unnecessary drafting.

Occupying less than 11 square feet of floor space, the Streamliner can be moved intact through any standard-sized door from office to office.

Fifteen minutes of instruction turns a novice into a professional operator. The original to be reproduced is placed on a sheet of Ozalid sensitized material and fed into the machine with both materials conveyed around the printing cylinder. Here ultra violet light penetrates the translucent original and reduces to an invisible compound all parts of the sensitized material which are not underneath the lines or figures of the original, so that after exposure, only the facsimile of your original remains visible on the sensitized surface. The second and last step consists of feeding the print into the dry developer, a few inches away.

The Streamliner is made by the Ozalid Div. of General Aniline & Film Corp., Johnson City, N. Y.

Foster D. Snell, Inc. Makes Appointments

Foster D. Snell, Inc., 29 West 15th St., New York 11, N. Y., consulting firm of chemists and engineers, has elected L. C. Cartwright, secretary; Albert F. Guiteras, treasurer, and Louis J. Bowlby, Jr., assistant treasurer.

Hyster Opens Los Angeles Office

The Hyster Co., Portland 8, Ore., opened its new Los Angeles-area retail truck sales and service facilities at 5301 Pacific Blvd., Huntington Park, Calif.—with an open house on May 20 that lasted from 2 to 9 p.m.

The new offices include a large showroom, parts and service departments, offices, and adjacent storage area. L. W. Barclay heads this exclusive distributorship for Hyster industrial trucks in thirteen counties of southern California.

PIPE FITTINGS

Warren fittings, like Warren pipe, are made in all sizes and to all standard patterns for use with cast iron pipe of standard designs.

Special castings to meet your individual requirements may make use of our large stocks of non-standard patterns.

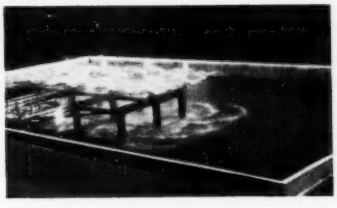
BELL & SPIGOT—FLANGE —SHORT BODY—PLAIN ENDS — MECHANICAL JOINT — SPECIALS

Sizes—2" to 84"

WARREN FOUNDRY & PIPE CORP

11 Broadway New York, N. Y.
72 Federal Street Boston, Mass.

"GUNITE" FOR ECONOMY

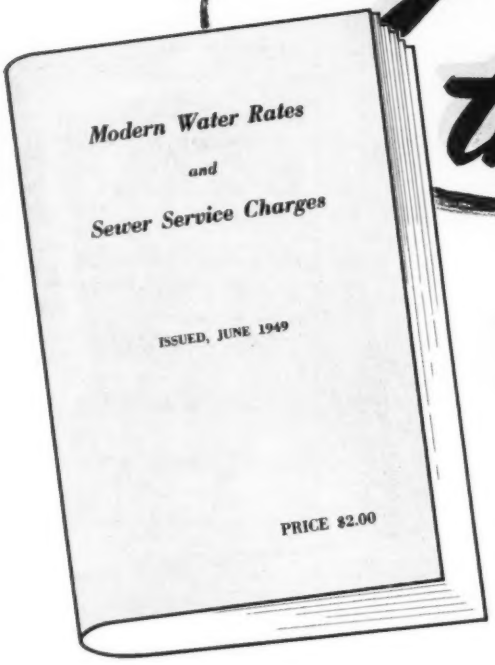


Excessive leakage of reservoirs is an extravagance which no community need endure. Relining with "GUNITE" is less expensive than building new reservoirs and is more permanently water-tight than other methods of construction.

We relined this filtered water reservoir at Charlottesville, Va. in 1937. It is still in excellent condition. We have built, repaired and remodeled many reservoirs, in some instances increasing their capacities. Many examples of this and other types of "GUNITING" are shown and described in Bulletin D2400. Write today, on your letterhead, for your free copy.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE CEMENT GUN

Just Off the Press



Tells...

The types of water rates that are in use and the advantages and disadvantages of each.

How to calculate the minimum water rate to make it effective.

How to charge out-of-city water customers and be fair to them and the water department.

How to read meters and bill customers efficiently.

How to calculate hydrant rental.

What to consider when framing a sewer service charge.

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Power Scythe Pays Cost In Three Months

Jari power scythe owned by Watertown, Mass., Highway Department mowing in front of City Hall.

Three months' use of a 36-inch power scythe, manufactured by Jari Products, Inc., Minneapolis 8, Minn., last summer and fall paid its cost in hand labor saved. The machine is used chiefly in the mowing of grass borders along the public highways which average about 36 inches in width, the same as the scythe, but it also has been used in the cutting of vacant lots owned by the town and sections where ragweed was prevalent. We are getting even more efficient results this year.—*Highway Superintendent, Watertown, Mass.*

Hardinge Appoints Baldwin

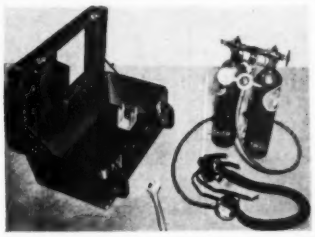
Robert L. Baldwin has been appointed assistant to G. A. Wallerstedt, western district manager for the Hardinge Co., Inc., 240 Arch St., York, Pa., to assist in sales development. The Hardinge office at 24 California Street in San Francisco is his headquarters.

Fast Cleaning of Trucks, Cars

The Homestead Valve Mfg. Co., Coraopolis, Pa., has announced a new Hypressure Jenny steam cleaner that, requiring only 27 by 37 inches of floor space, develops from 80 to 120 pounds of working pressure to clean down trucks, cars, and other municipal equipment.

It has a normal 45-gph capacity that can be stepped up to 240 gallons per hour by means of an Adjusta-Blast gun, an optional accessory. The Hypressure Jenny has instant starting and steaming, automatic nozzle control for stopping and starting the machine at the cleaning job, and selective compound and fuel feed.

Oxygen Equipment For Emergency Use



The Scott Aviation Corp., 191 Erie St., Lancaster, N. Y., is making a new model of the Scott oxygen-demand Inhalator for administration of oxygen. A completely self-contained package, the Type B unit comes with two 95-gallon-capacity cylinders, an oronasal mask, 6-foot extension hose, wrench, and valve key. It attaches to larger cylinders for service of longer duration.

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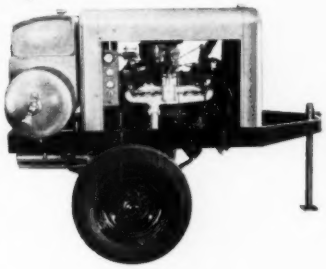

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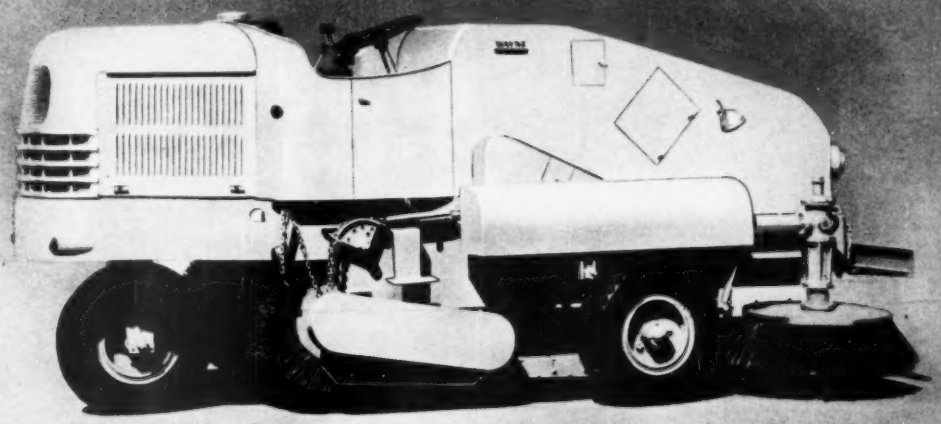

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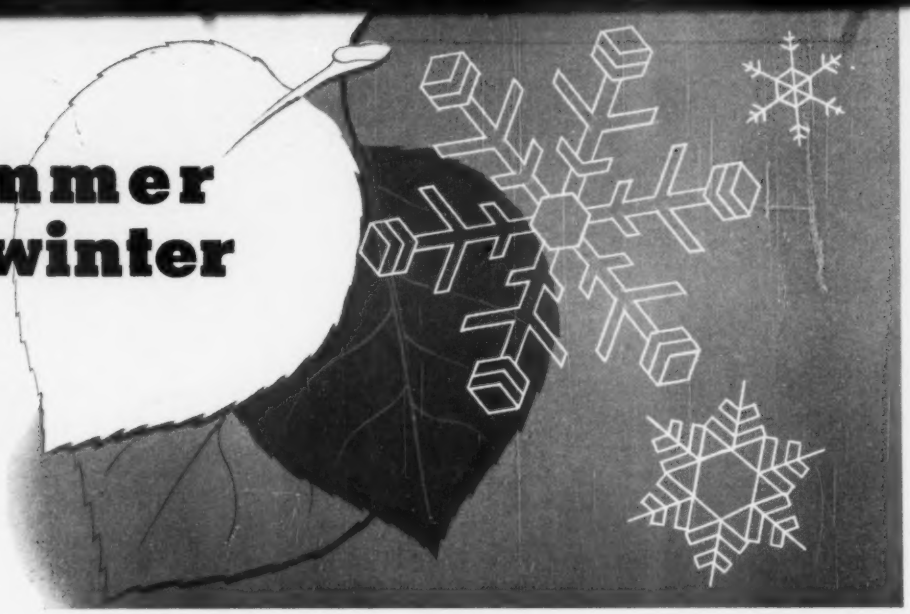

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